Ecology and habitat

Arge stuhlmanni often lives in the same habitat as *A. deckerti* (see the latter species). The Namibian habitats are located in the Woodland Savanna Biome and the Thornbush Savanna Biome (Fig. 95). The flight season in Namibia is from December to April.

Remarks

The holotype of *A. stuhlmanni* was deposited in the ZMUH and was destroyed in World War II.

Arge stuhlmanni is very similarly coloured to *A. deckerti*, but *A. deckerti* differs usually by the entirely yellow costa and subcosta of fore wing (Fig. 60).

As in *A. deckerti*, the colour pattern varies. The colouration of the costa and subcosta varies from a black apical half to blackish at extreme apex adjacent to the stigma (Figs 93A, B). Some females have a narrow black posterior margin of mesopleuron. In very few females the mesopleura may be almost entirely black. The black colouration on the upper surface of the abdomen may be reduced or sometimes entirely absent, or is extended similarly to that of *A. deckerti*. The hind femora of males may be entirely yellow.

Fig. 95. The habitat of *Arge stuhlmanni* on the farm “Wilsonfontein” in the Nama Karoo Biome between Windhoek and Swakopmund (Namibia). (Photo by J. Deckert)

Arge taeniata (Klug, 1834). Pelargonium sawfly

Hylotoma taeniata Klug, 1834: 233. ♀. Type locality: Capland, Pr. b. sp. [Promontorium bonae spei] [Cape of Good Hope] (Western Cape Province, South Africa) (MFN).

Athalia pelargonii Skaife, 1954: 312. ♀. Type locality: Houtbay, Cape Province (Western Cape Province, South Africa) (BMNH).

Pelargonium sawfly is the approved common name.

Female (Figs 96A, B)

Head and antenna black; apical half of mandible dark reddish to blackish apically. Thorax orange with the following black: a broad longitudinal stripe on mesoscutum and mesoscutellum, metascutellum, ventral half of mesopleuron, mesosternum, katepimeron, metapleuron. Legs black with very slight blue metallic lustre. Wings slightly infuscate throughout; substigmal spot of fore wing negligible; intercostal area flavescent-hyaline; costa and subcosta yellow, blackish at extreme apex adjacent to dark brown stigma; rest of venation yellow to light brown in apical half.

Abdomen yellow, tergum 1,2 with two blackish medial spots, terga 6,7 with small black medial spot, following terga with medial spots in various widths, sawsheath with black apex.

Head very slightly enlarged behind eyes. Antenna 1.2× as long as maximum head width; flagellum conspicuously enlarged towards apex and looks truncate apically, quadrangular in cross section, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae weakly compressed. Eyes converging below. Anterior margin of clypeus conspicuously triangularly emarginate medially, supraclypeal flatly rounded up to base of interantennal carinae, interantennal

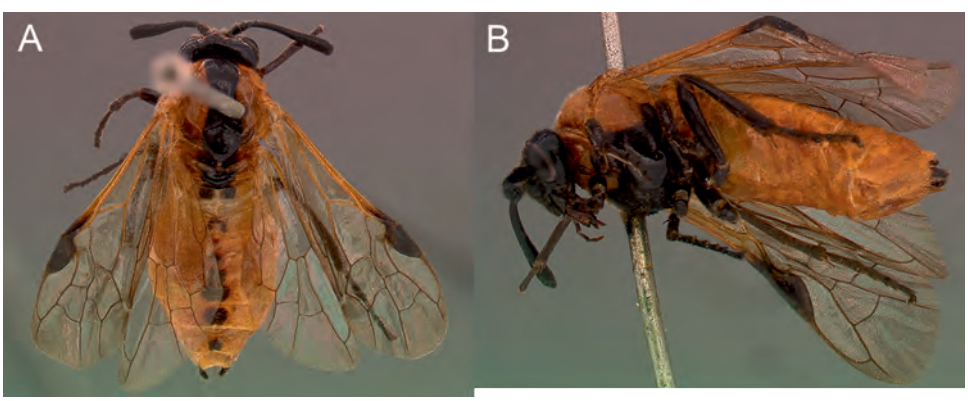

Fig. 96. A-B. *Arge taeniata*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

carinae moderately sharply ridged between antennae, obscurely converging downward, extending about a quarter of way to clypeus.

Vertex and gena nearly impunctate, shiny; frons sparsely micropunctate, shiny, supraclypeal area moderately densely punctate, shiny, clypeus rugosely sculptured, subshiny; pubescence light yellow. Mesoscutum very shallowly punctate, shiny; pubescence similar to that on head. Abdomen obscurely microsculptured, shiny. Sawsheath: Figs 97A, B. Lancet with about 15 serrulae (Figs 97C, D)

Length: 7.2-8.3 mm.

Male

Unknown.

Etymology

The Latin adjective *taeniata* means “banded”, and probably refers to the colour pattern of the thorax.

Distribution

South Africa (KwaZulu-Natal Province, Western Cape Province) (Fig. 170).

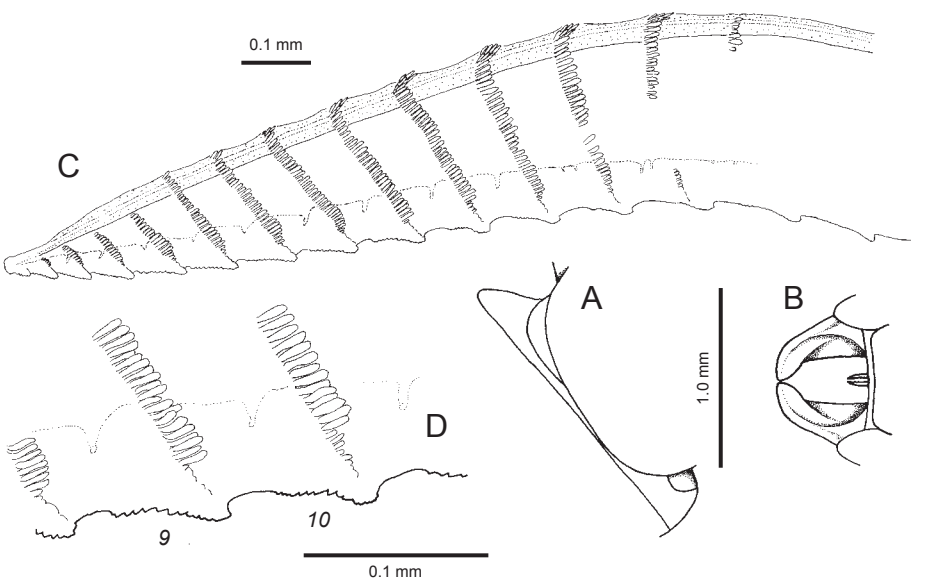

Fig. 97. A-D. *Arge taeniata*. **A**. Sawsheath (lateral aspect). **B**. Sawsheath (dorsal aspect). **C**. Lancet. **D**. Serrulae 9-10.

Host plant

Pelargonium L'Héritier de Brutelle ex Aiton (Geraniaceae) (Skaife 1954, Prinsloo 1985).

Ecology and habitat

The known localities belong to the Coastal Fynbos vegetation type of the winter rainfall zone. One female was sampled in the Grassland Biome of KwaZulu-Natal Province, which is situated in the summer rainfall zone.

The flight season is not well known. Single specimens have been recorded in February, April, May, August and December.

Remarks

Arge taeniata belongs to the *A. annulipes* species group (Pasteels 1953).

Most of the material seen was collected in the wider area of Cape Town. So far the record of one female from Escourt (KwaZulu-Natal Province) in 1894 seems to be unusual.

Arge taeniata is characterized among other things by a narrow black longitudinal stripe on the dorsal surface of abdomen. Sometimes on terga 2-4 this stripe is interrupted.

Skaife (1954) misidentified this species as belonging to *Athalia*, which led him to conclude that it was the new species *Athalia pelargonii*.

Arge vannoorti Koch & Liston, 2012

Arge vannoorti Koch & Liston, 2012b: 178. ♂. Type locality: West Coast Fossil Park, Western Cape Province, South Africa (SAMC).

Male (Figs 98A, B)

Head black with blue metallic lustre; apical half of mandible light brown becoming reddish brown towards apex; antenna black. Thorax black with blue metallic lustre; pronotum extensively orange laterally, tegula orange. Legs black. Wings slightly infuscate; fore wing with a small smoky substigmal spot; intercostal area somewhat darker, stigma, costa, subcosta and rest of venation dark brown. Abdomen black with blue metallic lustre.

Head very slightly enlarged behind eyes. Antenna 1.9× long as maximum head width; flagellum not enlarged towards apex, triangular in cross section, ventral surface with strongly compressed and sharp longitudinal carina, other longitudinal carinae more weakly compressed. Eyes converging below. Anterior margin of clypeus circularly emarginate, supraclypeal area flatly rising up to base of

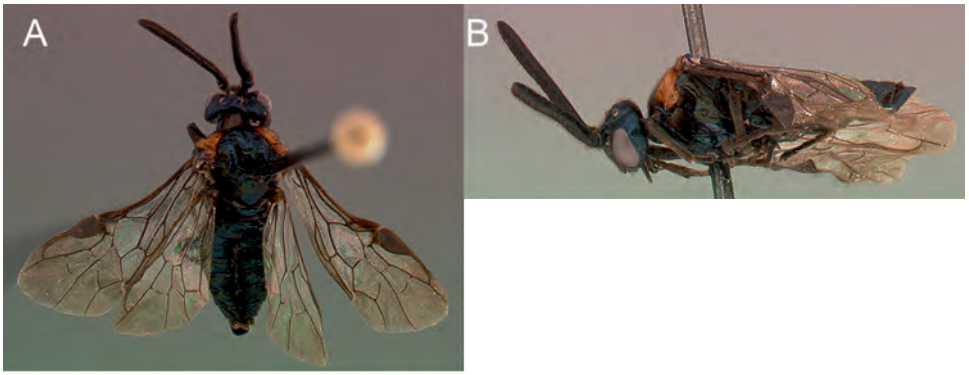

Fig. 98. A-B. *Arge vannoorti*, habitus, male (holotype). **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

interantennal carinae, interantennal carinae sharply ridged between antennae, slightly converging downward, extending nearly half way to clypeus.

Head rather densely micropunctate, subshiny, postocellar area nearly impunctate, shiny; pubescence brown. Thorax nearly impunctate, shiny; pubescence similar to that on head. Abdomen irregularly microsculptured, subshiny. Genitalia (Figs 99A, B).

Length: 5.7-6.4 mm.

Female

Unknown.

Etymology

This species was named after Dr. Simon van Noort, the curator of Entomology at the Iziko South African Museum, Cape Town, South Africa.

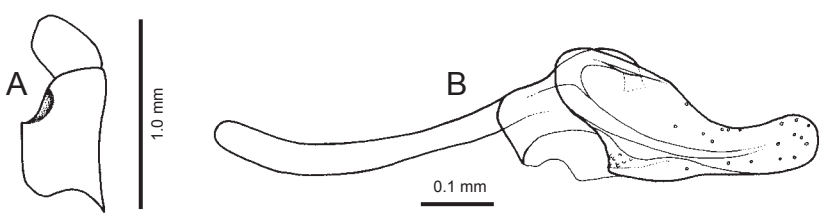

Fig. 99. A-B. *Arge vannoorti*. **A**. Harpe and parapenis (right, ventral aspect). **B**. Penis valve (left, lateral aspect).

Distribution

South Africa (Western Cape Province) (Fig. 170).

Host plant

Unknown.

Ecology and habitat

The habitat belongs to the winter rainfall zone and is characterized as Sand Plain Fynbos vegetation type (Fynbos Biome).

The flight season is not well known, the specimens were collected in September.

Remarks

Arge vannoorti is placed in the *Arge capensis* species group (Koch & Liston 2012a) and is distinguished from the other species of the group by the restriction of the orange colouration to the pronotum and tegulae. In the other species the orange colouration extends partly to the mesonotum, mesopleuron and mesosternum.

In the shape of the penis valve *A. vannoorti* is similar to *A. capensis*. Apart from colouration, *A. capensis* differs in the following characters: antennae 1.8× long as head maximum width; supraclypeal area flatly rounded; interantennal carinae scarcely converging downwards, extending about a third of the way to clypeus, and intercarinal area conspicuously broader than in *A. vannoorti.*

Arge whiteheadi Koch & Goergen, 2010

Arge whiteheadi Koch & Goergen, 2010: 28. ♀. Type locality: Stellenbosch (Western Cape Province, South Africa) (SAMC).

Female (Figs 100A, B)

Head black with slight blue metallic lustre; mandible reddish brown with blackish basal half; flagellum dark brown. Thorax orange with the following being black with blue metallic lustre: lateral markings of anterior margin of pronotum, a medial longitudinal stripe becoming broader apically on median lobe of mesoscutum, mesoscutellum except for two lateral spots, mesoscutellar appendage, propleuron, prosternum, mesosternum, ventral part of mesopleuron, katepimeron, metapleuron. Legs black with slight blue metallic lustre. Wings slightly infuscate; fore wing with a small smoky substigmal spot; intercostal area infuscate, stigma brown, costa, subcosta, and rest of venation brown with dark brown at base. Abdomen black with conspicuous blue metallic lustre.

Head parallel behind eyes. Antenna 1.4× as long as maximum head width; flagellum slightly enlarged towards apex and quadrangular in cross section, somewhat flattened toward apex, interior surface with moderately compressed longitudinal

carina, other longitudinal carinae more weakly compressed. Eyes converging below. Anterior margin of clypeus shallowly circularly emarginate, supraclypeal area flatly rising up to base of interantennal carinae, interantennal carinae sharply ridged between antennae, converging downwards, and extending one quarter of distance to clypeus.

Vertex and gena moderately densely micropunctate, shiny; frons, supraclypeal area and clypeus more densely punctate with larger punctures, shiny; pubescence yellowish. Mesoscutum very sparsely micropunctate, shiny; pubescence similar to head. Abdomen shiny, terga 1-4 transversely microsculptured, following terga irregularly punctate. Sawsheath: Figs 101A, B. Lancet with about 15 serrulae (Figs 101C, D).

Length: 7.2 mm.

Male

Unknown.

Etymology

This species was named after the late Dr. Vincent Booth Whitehead (1921 – 2005), the former Head of the Entomology department at the Iziko South African Museum, Cape Town.

Distribution

South Africa (Western Cape Province) (Fig. 172).

Fig. 100. A-B. *Arge whiteheadi*, habitus, female (holotype). **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Host plant

Unknown.

Ecology and habitat

The collection locality belongs to the Mountain Fynbos vegetation type of the winter rainfall zone.

This species was collected in 1897, but remained undetected in the collection of the Iziko South African Museum, Cape Town. Despite many efforts, it has not been possible to collect more recent material. Probably, this species has become extinct as a consequence of changed land use (urbanization of rural areas as well as agricultural and forestry land use; Figs 2-6) and the associated destruction of natural habitats. This is especially true of the Greater Cape Town area, to which Stellenbosch belongs.

Remarks

Arge whiteheadi belongs to the *A. capensis* species group (Koch & Liston 2012a), and is similarly coloured to *A. capensis*. *Arge capensis* differs distinctly in the nearly entirely orange thorax and the yellow apex of the abdomen, as well as in the nearly uniform and filiform trichoid sensilla of the lancet (Figs 55C, D).

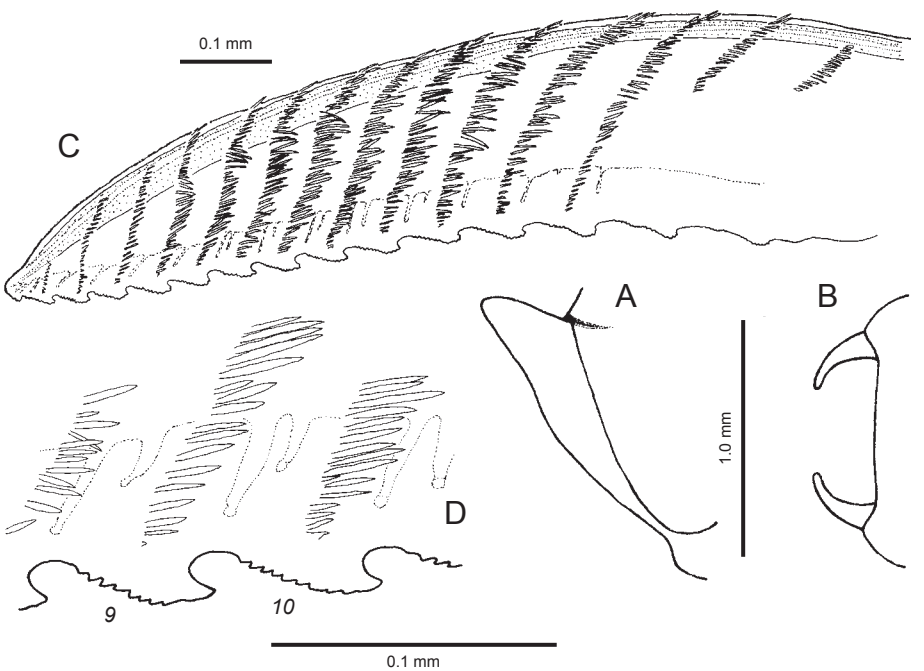

Fig. 101. A-D. *Arge whiteheadi*. **A**. Sawsheath (lateral aspect). **B**. Sawsheath (dorsal aspect). **C**. Lancet. **D**. Serrulae 9-10.

Genus *Pampsilota* Konow, 1899

Pampsilota Konow, 1899: 76. Type species: *Pampsilota afer* Konow, 1899, designated by Rohwer, 1911. http://www.waspweb.org/Tenthredinoidea/Argidae/Athermantinae/Pampsilota/index.htm

Description

Antenna 3-segmented (Fig. 40A), scape and pedicel short, flagellum very long and unsegmented. Clypeus not clearly separated by an epistomal suture from the supraclypeal area (Fig. 103A). Hind tibia without preapical spine; tarsal claws simple (Fig. 44E). Fore wing with radial crossvein (2r) absent and crossvein 2r-m present, with basal anal cell (1A) closed and anal cell (2A) long petiolate (1A) (Fig. 41N); radial cell of hind wing (R1) closed, with anal cell (A) and two middle cells (Rs and M) present (Fig. 41N). Tergum 1 with a more or less narrow and deep median split.

The colouration of the species is black with more or less blue metallic lustre and with yellowish markings. The size ranges from 5.0 to 15.0 mm in length.

Host plants

Nothing is known about their host plants.

Remarks

According to Taeger *et al*. (2010) three species of *Pampsilota* are distributed in the East Palaearctic and the Oriental Region as well as five valid species are known for the Afrotropical Region.

The absence of the preapical spine on the hind tibia distinguishes species of the genus *Pampsilota* from *Arge* species. The following two known southern African species are currently classified as *Pampsilota* species, despite their relatively small size compared to the West African type species *P. afer* (length 14.0 to 15.0mm), because it is not possible to find any significant morphological differences warranting the placement of these species in a separate genus. However, a revision of the genus *Pampsilota* may possibly provide evidence that the Namibian species do not belong in this genus.

Pampsilota brandbergensis Koch, 2006

Pampsilota brandbergensis Koch, 2006a: 120. ♂. Type locality: Brandberg Massif, Namibia (NNIC).

Male (Figs 102A, B)

Head black; apical half of mandible brown becoming dark reddish apically; flagellum dark brown. Thorax black; pronotum and tegula yellow. Legs black; anterior surface of fore tibia brownish yellow, posterior surface brown. Wings subhyaline; fore wing

Fig. 102. A-B. *Pampsilota brandbergensis*, habitus, male. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

with slightly infuscate substigmal spot; costa and stigma light brown, subcosta and rest of venation brown. Abdomen black; terga 3-5 yellow with medio-apical blackish spot on tergum 5, terga 2,6 yellow laterally, terga 7-9 with very slight metallic lustre; sterna 3-6 yellow with medio-apical blackish marking, sternum 9 (subgenital plate) with yellow apical half.

Head narrowed behind eyes. Antenna 2.0× as long as maximum head width; flagellum scarcely enlarged towards apex, triangular in cross section, somewhat flattened apically, interior surface with sharply compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes slightly converging below. Anterior margin of the clypeus shallowly circularly emarginate (Fig. 103A), supraclypeal area flatly rising up to base of interantennal carinae, interantennal carinae sharply ridged, scarcely converging downwards, extending about one third way to clypeus.

Vertex, frons and clypeus impunctate, shiny; gena with micropunctures, shiny; pubescence whitish. Mesoscutum nearly impunctate, shiny; pubescence similar to that on head. Abdomen shiny; terga 1-3 with irregular microsculpture, posterior margin of tergum 8 with large triangular membranous medial depression. Genitalia: as in Figs 103B-D.

Length: 5.5-6.0 mm.

Female

Unknown.

Etymology

This species is named after its collection locality, the Brandberg Massif in Namibia.

Distribution

Namibia (Erongo Region) (Fig. 176).

Ecology and habitat

The Brandberg Massif (Fig. 16) is located in the Nama Karoo Biome (for further details see *Arge meyi* and Fig. 80). The flight season is not well known, the specimens were sampled in March.

Remarks

Variability in colour pattern is scarcely noticeable. Tergum 5 may be entirely yellow and the pronotum may have a small ventro-lateral blackish spot.

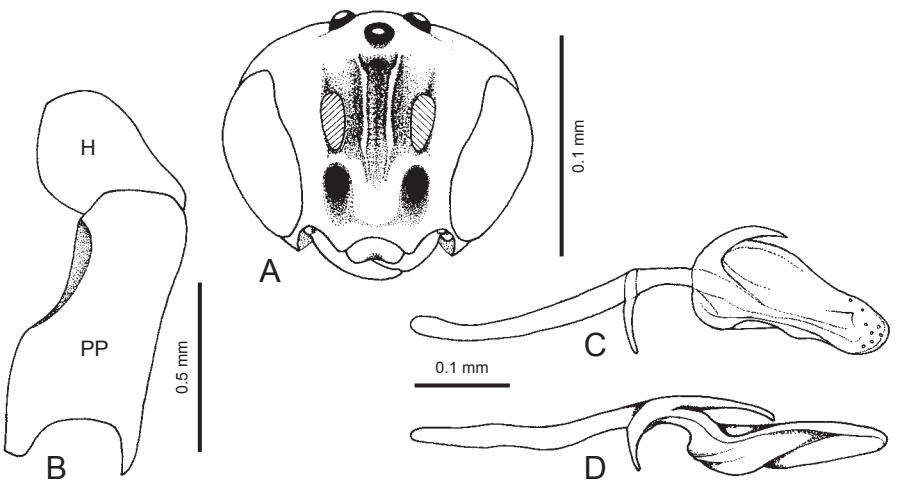

Fig. 103. A-D. *Pampsilota brandbergensis*. **A**. Head (frontal aspect). **B**. Harpe and parapenis (right, ventral aspect). **C**. Penis valve (left, lateral aspect). **D**. Penis valve (right, ventral aspect).

Pampsilota luederitzensis Koch, 2006

Pampsilota luederitzensis Koch, 2006b: 224. ♀. Type locality: Scorpion Hills, Lüderitz, Namibia (NNIC).

Female

Head and antenna black; apical half of mandible brown, gradually becoming blackish apically. Thorax black. Legs black; tibiae whitish, apically slightly brownish, tarsi brownish. Wings hyaline; fore wing with very small, slightly infuscate substigmal spot; intercostal area slightly flavescent-hyaline, costa light brown with basal half

white, stigma, subcosta and rest of venation light brown. Abdomen yellowish brown; terga 1,2 black, terga 3-5 with small light brown medial spot, tergum 5 additionally with light brown posterior margin, terga 6,7 brown; ventral surface of abdomen brown with yellow longitudinal medial strip.

Head parallel-sided behind eyes. Antenna 1.6× as long as maximum head width; flagellum scarcely enlarged towards apex, quadrangular in cross section, somewhat flattened toward apex, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes slightly converging downwards. Anterior margin of clypeus shallowly circularly emarginate medially, supraclypeal area roundly protruding up to start of interantennal carinae, interantennal carinae sharply ridged between antennae, converging downwards, extending about one third of way to clypeus.

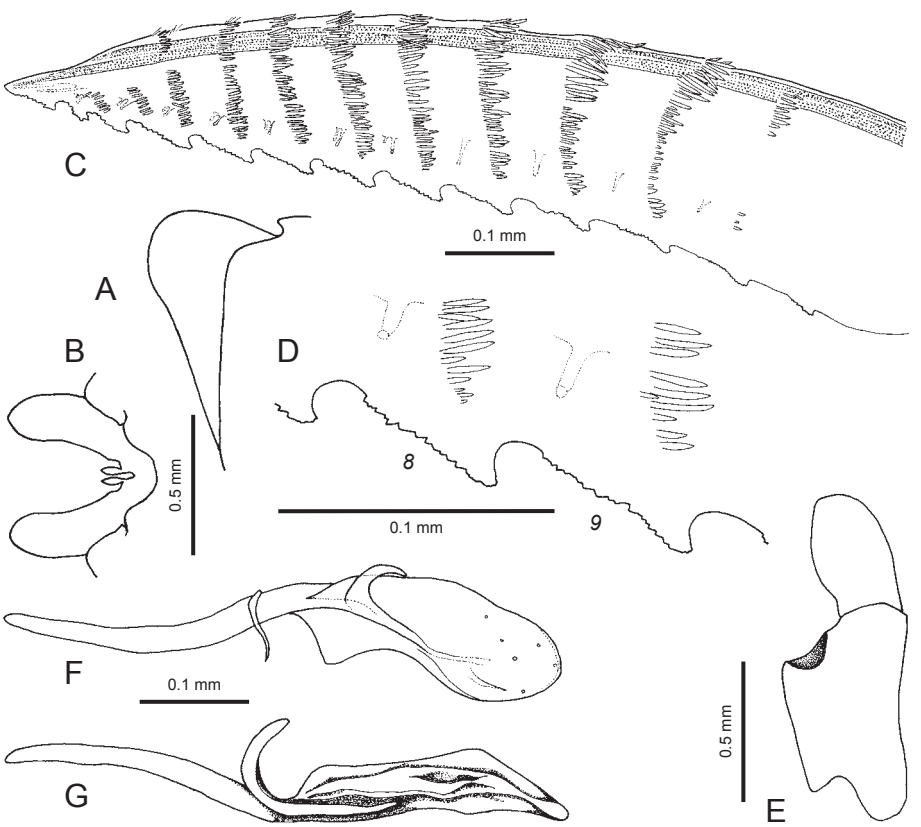

Fig. 104. A-G. *Pampsilota luederitzensis*. **A**. Sawsheath (lateral aspect). **B**. Sawsheath (dorsal aspect). **C**. Lancet. **D**. Serrulae 8-9. **E**. Harpe and parapenis (right, ventral aspect). **F**. Penis valve (left, lateral aspect). **G**. Penis valve (right, dorsal aspect).

Vertex, frons, gena, clypeus and supraclypeal area sparsely micropunctate, shiny. Pubescence whitish. Mesoscutum nearly impunctate, shiny; pubescence similar to that on head; lateral lobe of mesoscutum with narrow glabrous strip. Sawsheath: Figs 104A, B. Lancet with about 13 serrulae (Figs 104C, D).

Length: 6.0 mm.

Male (Fig. 105A)

Generally colouration similar to that of female. Head and mesoscutum with slight metallic lustre; anterior margin of labrum brownish, apex of mandible dark brown. Tarsi light brown. Costa of fore wing almost entirely whitish. Abdomen blackish, tergum 3 yellowish with light brown median spot, terga 4,7 light brown, distal terga yellow; sterna 7,9 yellow.

Antenna 1.7× as long as maximum head width; apex of flagellum flattened, interior surface with sharply compressed longitudinal carina. Other features as for female. Genitalia: Figs 104E-G.

Length: 5.3 mm.

Fig. 105. *Pampsilota luederitzensis*, habitus, male. Dorsal aspect.
(Photo by A.D. Liston)

Etymology

The species is named after Lüderitz, the district where the specimens were collected.

Distribution

Namibia (Karas Region) (Fig. 176).

Ecology and habitat

Pampsilota luederitzensis seems to be endemic to the Succulent Karoo Biome of the winter rainfall zone. The collection localities Scorpion Hills and Rosh Pinah (Fig. 106) are considered by Burke (2004) and Mendelsohn *et al*. (2002) as hotspots of plant endemism and plant diversity. The flight season is not well known, the specimens were sampled in August.

Remarks

Pampsilota luederitzensis is the second known species of this genus in the Namibian sawfly fauna together with *P. brandbergensis* Koch, 2006a.

The yellow pronotum, the entirely yellow terga and the entirely black legs of *P. brandbergensis* immediately distinguish this species from *P. luederitzensis*.

Fig. 106. Scorpion Hills near Rosh Pinah in the Succulent Karoo Biome (southern Namibia), the habitat of *Pampsilota luederitzensis* and *Triarge karooensis*. (Photo by F. Koch)

Genus *Triarge* Forsius, 1931

Triarge Forsius, 1931: 19. Type species: *Triarge plumbea* Forsius, 1931, by original designation. http://www.waspweb.org/Tenthredinoidea/Argidae/Arginae/Triarge/index.htm

Description

Antenna 3-segmented (Fig. 40A), scape and pedicel short, flagellum very long and unsegmented, in females subclavate segment. Clypeus not clearly separated by an epistomal suture from the supraclypeal area (Fig. 107B); interantennal area with a pair of more or less sharply ridged interantennal carinae (Fig. 107B). Hind tibia with a preapical spine (Fig. 40C); tarsal claws simple (Fig. 44E). Fore wing with radial crossvein (2r) absent, crossvein 2r-m absent, thus there are three cells (1R1, a long 2Rs, 3Rs), anal cell (2A) long petiolate (1A), basal cell (1A) nearly closed (Fig. 41L); hind wing with closed, appendiculated radial cell (R1), with anal cell (A) and with two middle cells (Rs and M) present (Fig. 41L). Tergum 1 with narrow, deep median split. Sawsheath in dorsal view conspicuously forcipated.

The colouration of the species is completely black, sometimes with a slight blue metallic lustre (with a single exception, *T. flavoapicalis* that has a yellow abdominal apex).

Ranging from 5.0 to 7.5 mm in length.

Host plants

Nothing is known about their host plants.

Remarks

The species of the genus *Triarge* are known only from the winter rainfall zone of southern Africa, and inhabit very small ranges. Their habitats belong to the Succulent Karoo Biome and Fynbos Biome. In total 9 species are known, which were revised by Koch (2006b, 2010a). *Triarge* species are distinguished from *Arge* by possessing the radial cell 1R1 and the long radial sector 2Rs (1Rs fused with 2Rs; Fig. 41L), as well as in their nearly entirely black colouration.

Differentiation of the females, based on the combination of both the shape of the serrulae and the shape of the sawsheath, is clearly easier than for the males. The genitalia of the males show only a few distinct interspecific differences. Not all of the *Triarge* species are imaged, because they do not differ externally to any considerable extent.

Triarge citrusdalensis Koch, 2006

Triarge citrusdalensis Koch, 2006b: 227. ♀. Type locality: Citrusdal Distr[ict] (Western Cape Province, South Africa) (SAMC).

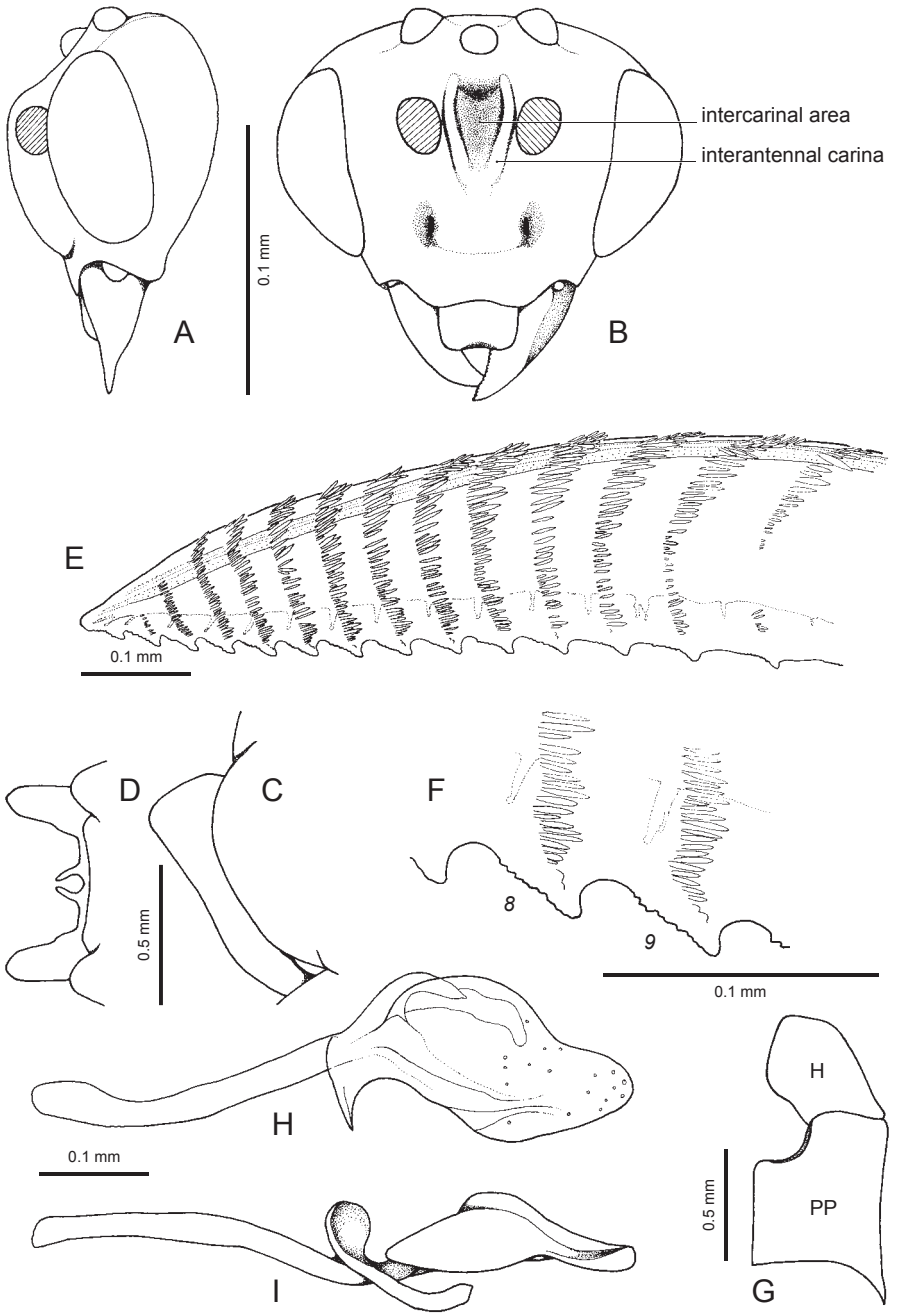

Fig. 107. A-I. *Triarge citrusdalensis*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9. **G**. Harpe and parapenis (right, ventral aspect). **H**. Penis valve (left, lateral aspect). **I**. Penis valve (right, dorsal aspect).

Female

Head and antenna black; apical half of mandible light reddish brown. Thorax black. Legs black; apices of femora very narrowly light brown, fore tibia light brown, basal third of mid and hind tibia light brown gradually becoming brown apically. Wings very slightly infuscate; fore wing with very small, slightly infuscate substigmal spot; costa, stigma, subcosta, and rest of venation brown. Abdomen black with slight blue metallic lustre.

Head slightly narrowed behind eyes. Antenna 1.5× as long as maximum head width; flagellum very slightly enlarged towards apex, and quadrangular in cross section, ventral surface with moderately compressed longitudinal carina, gradually disappearing apically, other longitudinal carinae more weakly compressed. Eyes very slightly converging downwards, anterior margin of clypeus shallowly circularly emarginate, supraclypeal area roundly protruding up to start of interantennal carinae (Fig. 107A), interantennal carinae sharply ridged between antennae, extending about one quarter of way to clypeus (Fig. 107B).

Vertex, frons, gena, clypeus, and supraclypeal area with scattered micropunctures, shiny; pubescence whitish. Mesoscutum scarcely micropunctate, shiny, and pubescent similarly to head. Abdomen shiny, terga with transverse microsculpture. Sawsheath: Figs 107C, D. Lancet with about 15 serrulae (Figs 107E, F).

Length: 7.0 mm.

Male (Figs 108A, B)

Colouration generally similar to that of female. Tibiae brown, basal third of mid and hind tibia and anterior surface of hind tibia downward to apex somewhat paler. Head slightly narrowed behind eyes. Antenna 2.5× as long as maximum head width; third antennomere not enlarged towards apex, ventral surface with conspicuously compressed longitudinal carina. Head and thorax more micropunctate than in female. Other features as for female. Genitalia: Figs 107G-I.

Length: 6.5 mm.

Etymology

This species is named after its collection locality, Citrusdal.

Distribution

South Africa (Western Cape Province) (Fig. 177).

Ecology and habitat

The habitat is located in the Mountain Fynbos vegetation type of the winter rainfall zone. The flight season is not well known, only a few specimens were collected from September to November.

Remarks

In its morphological structures and sculpture, especially in the head *T. citrusdalensis* could be confused with *T. nigra*, but in dorsal view the apices of sawsheath of *T. citrusdalensis* are more swollen (Figs 107D, 119D) and the serrulae are rounded at the anterior edge, whereas in *T. nigra* the serrulae are pointed on the anterior edge with one additional subbasal tooth (Fig. 119F). Furthermore the tibiae of *T. nigra* are darker. The shape of serrulae in *T. citrusdalensis* is most similar to *T. winterhoekensis*. However, in dorsal view the serrulae are flatter in *T. winterhoekensis* (Figs 122E, F), the shape of its sawsheath (Figs 122C, D) is distinctly distinguishable, and the legs are almost entirely black.

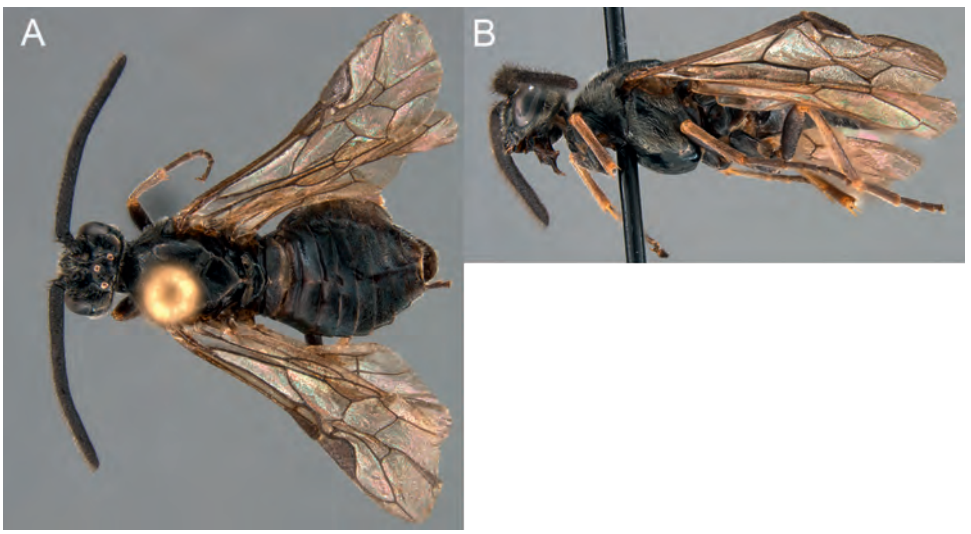

Fig. 108. A-B. *Triarge citrusdalensis*, habitus, male. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Triarge driehoekensis Koch, 2010

Triarge driehoekensis Koch, 2010a: 99. ♀. Type locality: Driehoek, Cederberg, Western Cape Province, South Africa (SAMC).

Female (Figs 109A, B)

Head and antenna black; apical half of mandible light brown gradually becoming dark reddish apically. Thorax black. Legs black; apices of femora very narrowly light brown, anterior surface of fore and hind tibia light brown, basal third of hind tibia light brown, anterior surface downwards to the preapical spine dirty whitish. Wings hyaline, apical half very slightly infuscate; fore wing with very small, smoky

substigmal spot; costa, stigma, subcosta and rest of venation black. Abdomen black.

Head scarcely narrowed behind eyes. Antenna 1.5× as long as maximum head width; flagellum very slightly enlarged towards apex, triangular in cross section, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes slightly converging downwards. Anterior margin of clypeus very shallowly emarginate, supraclypeal area very gently rounded up to start of interantennal carinae (Fig. 110A), interantennal carinae sharply ridged between antennae, converging downwards, extending about one third of way to clypeus (Fig. 110B).

Vertex, frons, gena and clypeus with scattered micropunctures, shiny; supraclypeal area slightly shallowly rugosely sculptured, shiny; pubescence whitish. Mesoscutum scarcely micropunctate, shiny and pubescence similar to head. Abdomen shiny; terga irregularly microsculptured. Sawsheath: Figs 110C, D. Lancet with about 14 serrulae (Figs 110E, F).

Length: 6.7 mm.

Male

Unknown.

Etymology

This species was named after its collection locality, Driehoek, an area in the central Cederberg Mountains.

Distribution

South Africa (Western Cape Province) (Fig. 177).

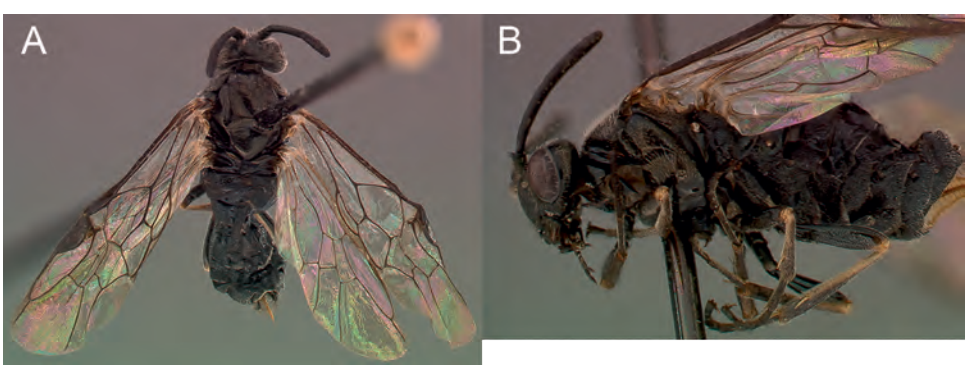

Fig. 109. A-B. *Triarge driehoekensis*, habitus, female (holotype). **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Ecology and habitat

The collection locality (Fig. 111) belongs to the Mountain Fynbos vegetation type of the winter rainfall zone. The flight season is not well known. The species is only represented by the holotype, which was collected in September.

Remarks

In its morphological structures and sculpture *T. driehoekensis* could be confused with *T. namaquensis*, but in lateral view the sawsheath of *T. namaquaensis* is narrowly rounded at the apex (Fig. 116C), and in dorsal view the sawsheath is more broadly forcipated (Fig. 116D). Furthermore, the serrulae of *T. namaquaensis* are flat and hook-like (Figs 116E, F).

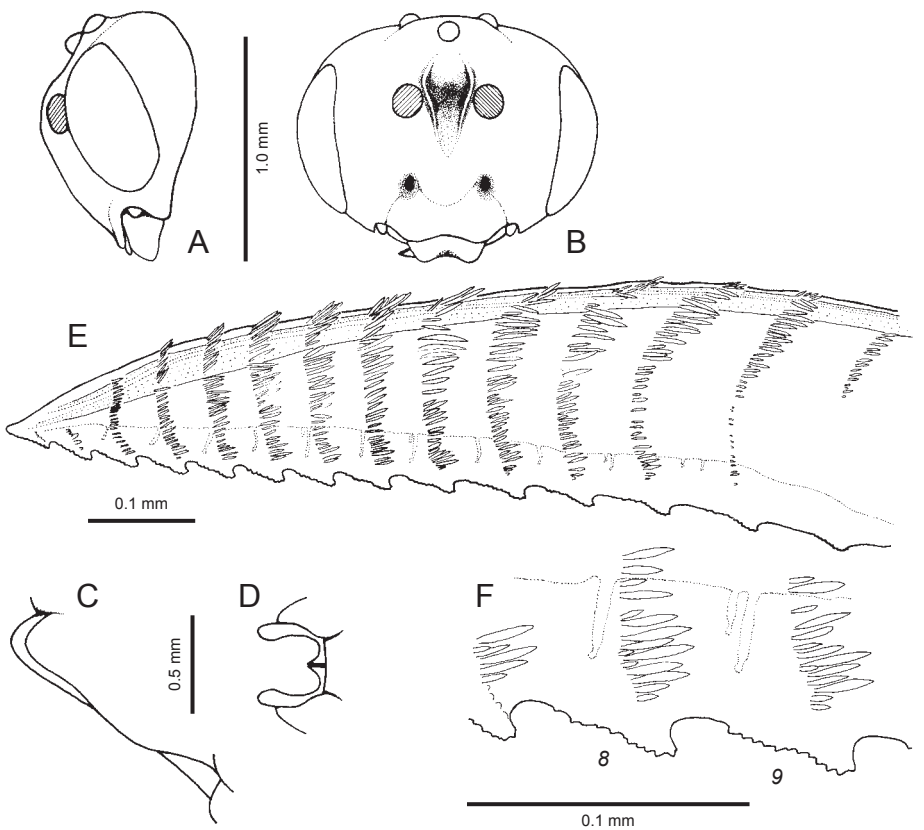

Fig. 110. A-F. *Triarge driehoekensis*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9.

Fig. 111. The landscape of Driehoek in the Cederberg Mountains (Western Cape Province); the habitat of *Triarge driehoekensis*. (Photo by F. Koch)

Triarge flavoapicalis Koch, 2006

Triarge flavoapicalis Koch, 2006b: 226, 228. ♀. Type locality: Bowesdorp, Namaqualand (Northern Cape Province, South Africa) (SAMC).

Female

Head black with slightly copper lustre; labrum brown, apical half of mandible light brown gradually becoming dark reddish apically; antenna black. Thorax black. Legs black; apices of femora very narrowly light brown, basal half of fore tibia light brown becoming dark brown apically, basal third of mid and hind tibia yellowish becoming dark brown apically, anterior surface of hind tibia yellowish downwards to the preapical spine. Wings slightly flavescent-hyaline throughout; fore wing with very small, slightly infuscate substigmal spot; costa yellowish, stigma, subcosta and rest of venation light brown. Abdomen black; tergum 8 laterally, terga 9,10 and sawsheath yellow.

Head narrowed behind eyes. Eyes converging below. Anterior margin of clypeus shallowly circularly emarginate, supraclypeal area roundly protruding up to base

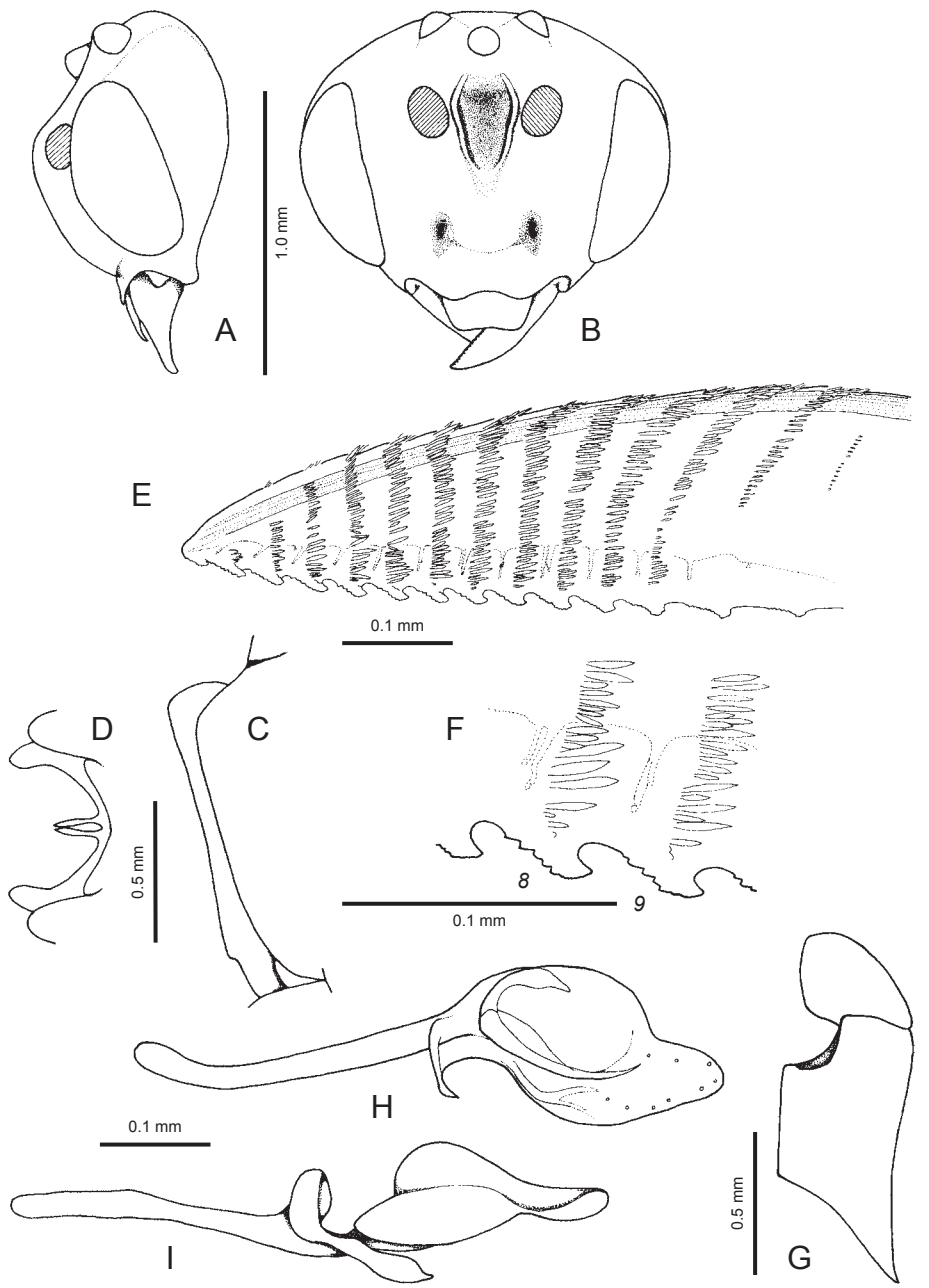

Fig. 112. A-I. *Triarge flavoapicalis*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9. **G**. Harpe and parapenis (right, ventral aspect). **H**. Penis valve (left, lateral aspect). **I**. Penis valve (right, dorsal aspect).

of interantennal carinae (Fig. 112A), interantennal carinae sharply ridged between antennae, converging downwards, extending about half way to clypeus (Fig. 112B). Vertex, frons, gena, clypeus and supraclypeal area scarcely punctate, shiny; pubescence whitish. Mesoscutum nearly impunctate, shiny; pubescence similar to that on head. Abdomen shiny; terga with transverse microsculpture. Sawsheath: Figs 112C, D. Lancet with about 14 serrulae (Figs 112E, F).

Length: 6.3 mm.

Male (Figs 113A, B)

Colouration generally similar to that of female. Tibiae pale yellow, hind tibia becoming darker apically, tarsi brown. Tergum 8, sterna 5,6 medio-apically and sterna 7-9 entirely yellow. Antenna 2.2× as long as maximum head width; flagellum not enlarged towards apex, triangular in cross section, interior surface with distinctly compressed longitudinal carina, apex slightly flattened. Other features as for female. Genitalia: Figs 112G-I.

Length: 6.3 mm.

Etymology

The name of this species refers to the yellow apex of the abdomen.

Distribution

South Africa (Northern Cape Province) (Fig. 176).

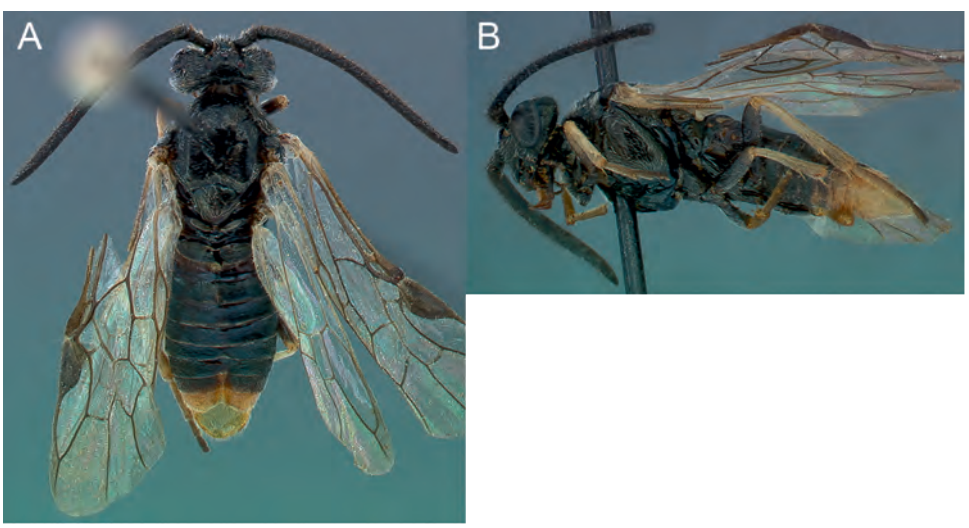

Fig. 113. A-B. *Triarge flavoapicalis*, habitus, male. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Ecology and habitat

The collection locality belongs to the Succulent Karoo Biome of the winter rainfall zone. The flight season is not well known, only single records exist from September.

Remarks

Triarge flavoapicalis differs conspicuously from the other known species of this genus in its yellow apex of the abdomen. The antennae of the female are missing and therefore not described.

Triarge karooensis Koch, 2006

Triarge karooensis Koch, 2006b: 226, 229. ♀. Type locality: Scorpion Hill, Lüderitz, Namibia (NNIC).

Female

Head and antenna black; apical half of mandible light brown, gradually becoming dark reddish apically. Thorax black. Legs black; apices of femora very narrowly light brown, basal half of tibiae yellowish, gradually becoming brown apically, anterior surface of hind tibia dirty whitish, downwards from the preapical spine brown. Wings subhyaline; fore wing with very small, infuscate substigmal spot; costa, stigma, subcosta and rest of venation brown. Abdomen black.

Head slightly narrowed behind eyes. Antenna 1.4× as long as maximum head width; flagellum very slightly enlarged towards apex, triangular in cross section, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes very slightly converging downward. Anterior margin of clypeus very shallowly circularly emarginate, supraclypeal area flatly rising up to base of interantennal carinae (Fig. 114A), interantennal carinae sharply ridged between antennae, converging downwards, ending about one third distance to clypeus (Fig. 114B).

Vertex, frons, gena, clypeus, and supraclypeal area nearly impunctate, shiny; pubescence white. Mesoscutum micropunctate and pubescent similarly to head. Abdomen moderately shiny; terga with transverse microsculpture. Sawsheath: Figs 114C, D. Lancet about 13 serrulae (Figs 114E, F).

Length: 6.3 mm.

Male

Unknown.

Etymology

The species is named after the Succulent Karoo Biome of its habitat.

Distribution

Namibia (Karas Region) (Fig. 177).

Ecology and habitat

The habitat of the holotype is located in the Succulent Karoo Biome of the winter rainfall zone. The holotype was found in August.

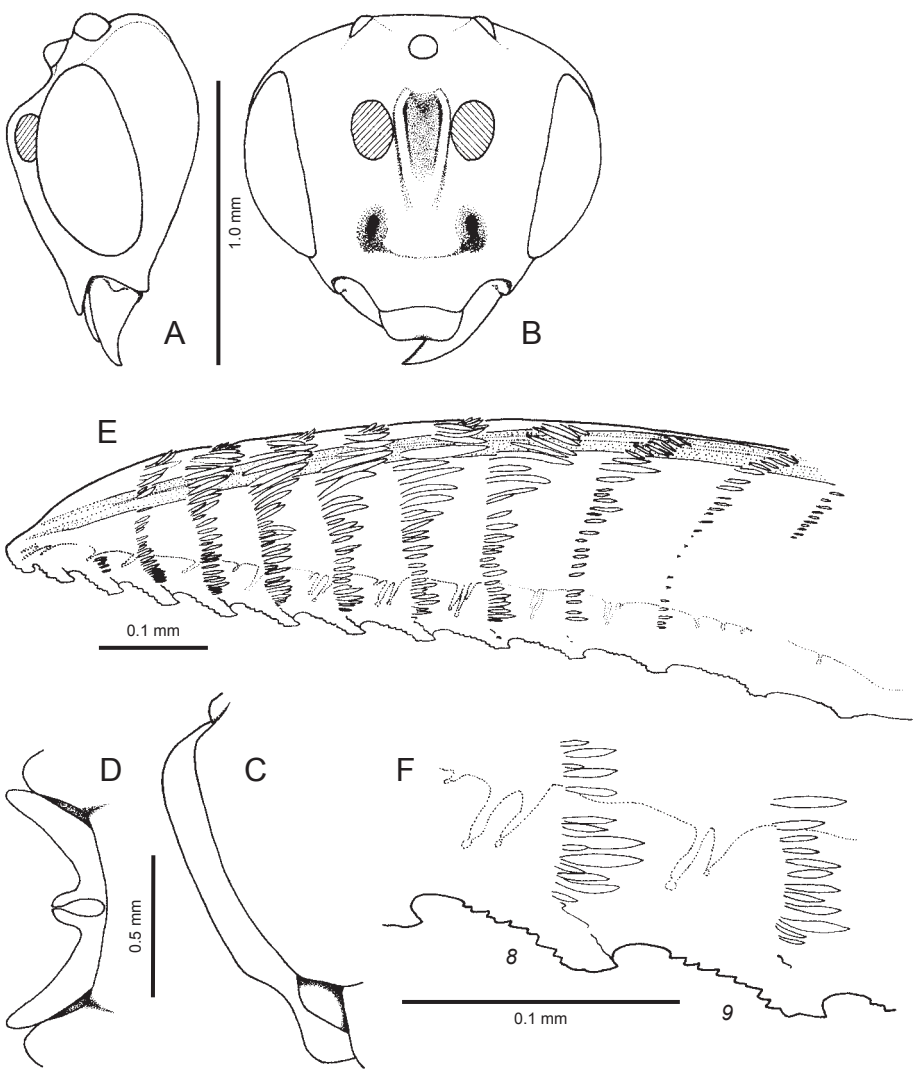

Fig. 114. A-F. *Triarge karooensis*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9.

Remarks

In dorsal view the apical gap of the forcipated sheath is very wide, similar to *T. mosselbayensis* (Fig. 115D). The tibiae of *T. karooensis* are more or less yellowish whereas in *T. mosselbayensis* the tibiae are black. Further differences between both species are discussed under *T. mosselbayensis*.

Triarge mosselbayensis Koch, 2006

Triarge mosselbayensis Koch, 2006b: 226, 231. ♀. Type locality: Mossel Bay, Western Cape Province, South Africa (UZMT).

Female

Head and antenna black; apical half of mandible reddish brown. Thorax black. Legs black; apices of femora very narrowly light brown. Wings hyaline; apical half slightly greyish-hyaline infused; fore wing with very small, slightly infuscate substigmal spot; costa, stigma, subcosta, and rest of venation brown. Abdomen black.

Head slightly narrowed behind eyes. Antenna 1.6× as long as maximum head width; flagellum very slightly enlarged towards apex, triangular in cross section, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes converging downwards. Anterior margin of clypeus very shallowly circularly emarginate, supraclypeal area nearly flatly rising up to start of interantennal carinae (Fig. 115A), interantennal carinae sharply ridged between antennae, converging downwards, extending about one third way to clypeus (Fig. 115B).

Vertex, frons, gena, clypeus and supraclypeal area nearly impunctate, shiny; pubescence greyish. Mesoscutum nearly impunctate, shiny, with pubescence similar to head. Abdomen moderately shiny; terga with distinctly contiguous micropunctures. Sawsheath: Figs 115C, D. Lancet with about 15 serrulae (Figs 115E, F).

Length: 6.0 mm.

Male

Colouration similar to that of female, except for brown tibiae. Other features as for female. Genitalia: Figs 115G-I.

Length: 6.0 mm.

Etymology

This species is named after its collection locality, Mossel Bay, Western Cape Province.

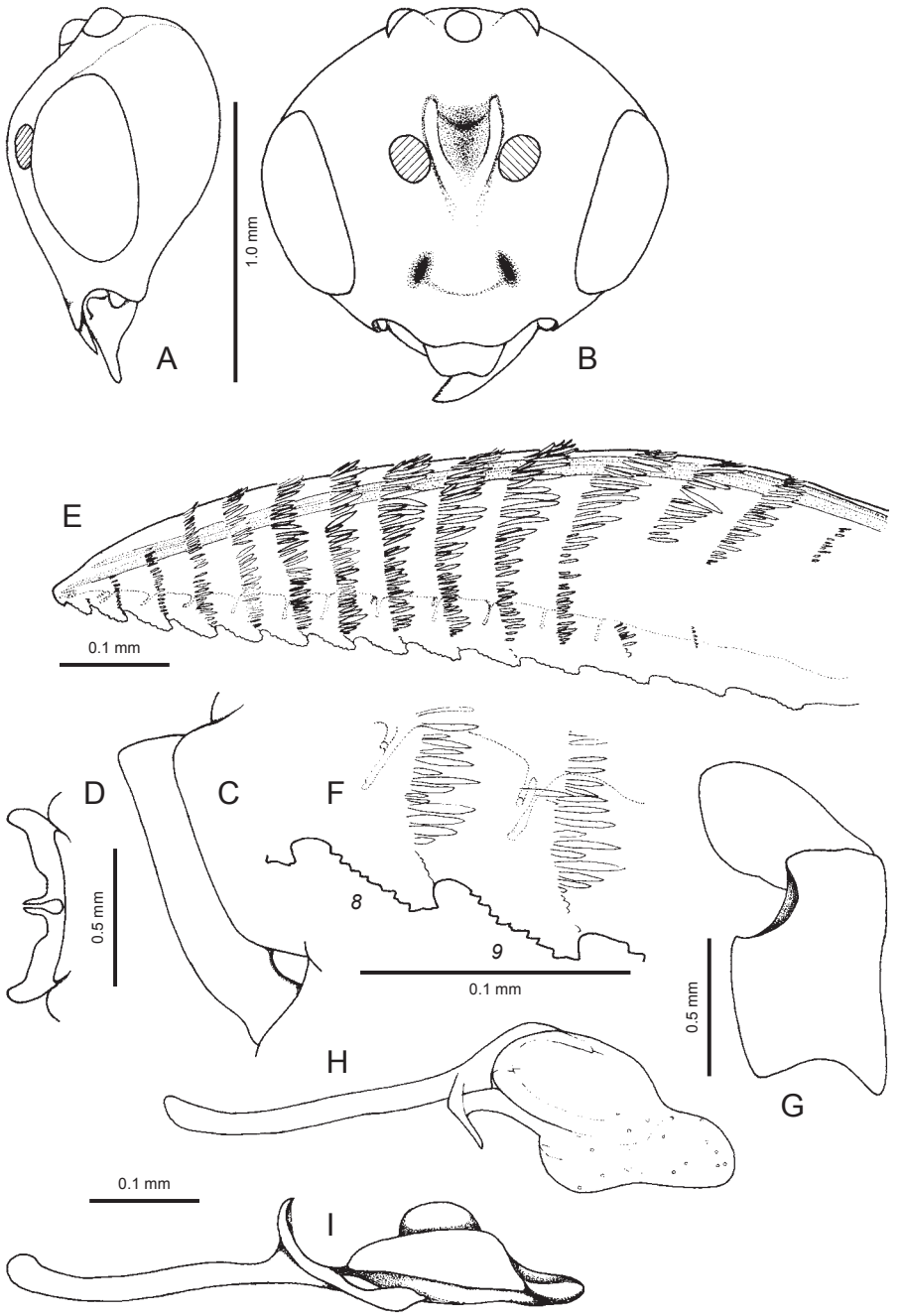

Fig. 115. A-I. *Triarge mosselbayensis*: **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9. **G**. Harpe and parapenis (right, ventral aspect). **H**. Penis valve (left, lateral aspect). **I**. Penis valve (right, dorsal aspect).

Distribution

South Africa (Western Cape Province) (Fig. 177).

Ecology and habitat

The habitat of this species belongs to the Coastal Fynbos vegetion type of the winter rainfall zone. The flight season is poorly known, only two records are known from the type locality in May and August.

Remarks

The holotype and paratype of *T. mosselbayensis* were the paratypes of *T. plumbea*. The differential diagnosis with *T. plumbea* is discussed under the treatment of the latter species. With the nearly flatly arising supraclypeal area and the shape of the sawsheath in dorsal view, *T. mosselbayensis* is similar to *T. karooensis* (Fig. 114D), but differs distinctly in the pointed apex of the sawsheath in lateral view and in the shape of the lancet including the serrulae, which are rather flattened in *T. karooensis* (Figs 114E, F).

Triarge namaquaensis Koch, 2006

Triarge namaquaensis Koch, 2006b: 226, 232. ♀. Type locality: Steinkopf, Kl.[ein] Namaland (Northern Cape Province, South Africa) (MFN).

Female

Head and antenna black; apical half of mandible light brown, gradually becoming dark reddish; flagellum apically dark brown. Thorax black. Legs black; apices of femora very narrowly light brown, basal half of tibiae fuscous, anterior surface of mid and hind tibia dirty whitish, downwards from the preapical spine blackish. Wings subhyaline; fore wing with very small, slightly infuscate substigmal spot; costa light brown, basal half and anterior margin whitish, stigma, subcosta and rest of venation brown. Abdomen black.

Head very slightly enlarged behind eyes. Antenna 1.2× as long as maximum head width; flagellum enlarged towards apex, quadrangular in cross section, ventral surface with slightly compressed longitudinal carina gradually disappearing apically, other longitudinal carinae more weakly compressed. Eyes very slightly converging downwards. Anterior margin of clypeus very shallowly triangularly excised, supraclypeal area very flatly rounded up to base of interantennal carinae (Fig. 116A), interantennal carinae sharply ridged between antennae, and converging downwards, extending about half way to clypeus (Fig. 116B).

Vertex, frons, gena, clypeus, and supraclypeal area sparsely micropunctate, shiny; pubescence white. Mesoscutum micropunctate and pubescence similar to head. Abdomen shiny; terga with transverse microsculpture. Sawsheath: Figs 116C, D. Lancet with about 13 serrulae (Figs 116E, F).

Length: 5.3 mm.

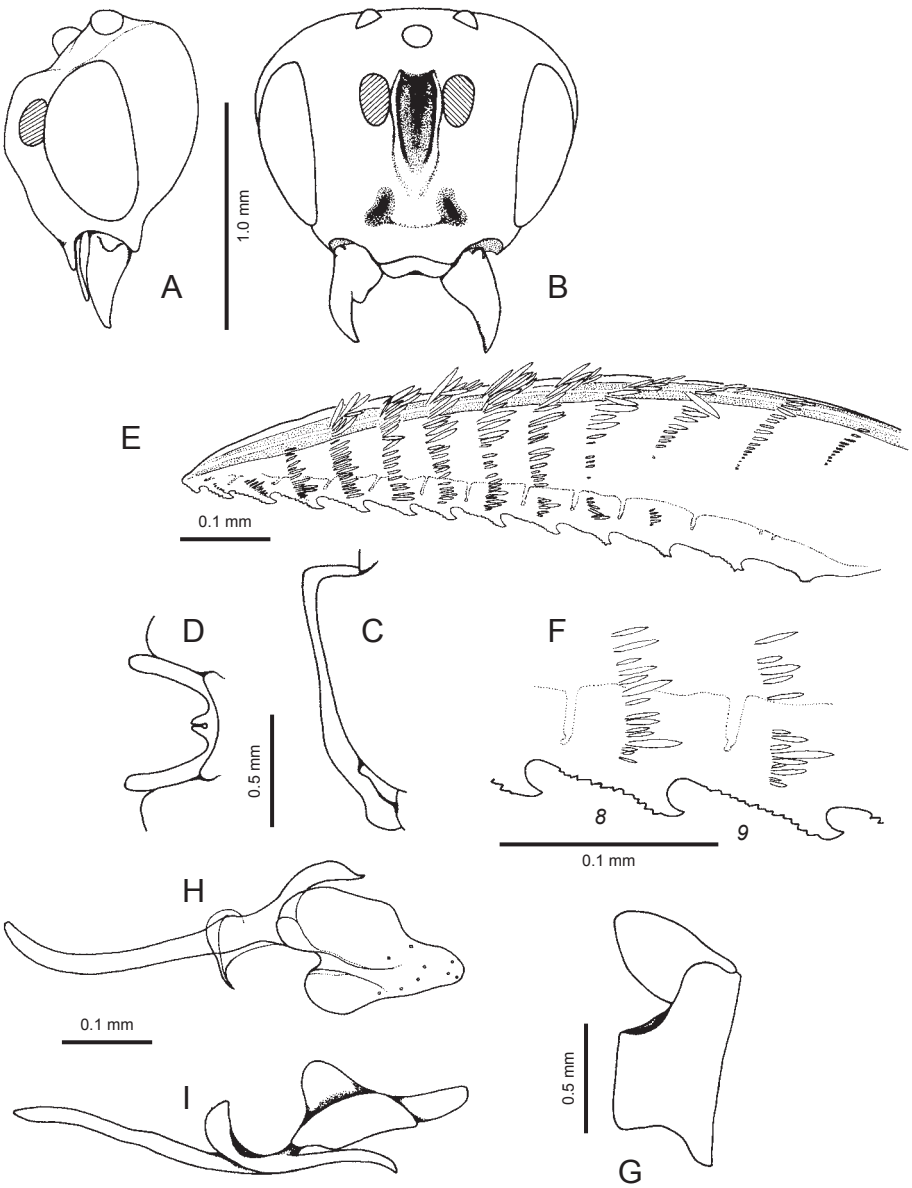

Fig. 116. A-I. *Triarge namaquaensis*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9. **G**. Harpe and parapenis (right, ventral aspect). **H**. Penis valve (left, lateral aspect). **I**. Penis valve (right, dorsal aspect).

Male

Colouration similar to that of female. Tibiae light brown becoming blackish apically. Wings slightly infuscate; costa, stigma, subcosta, and rest of venation brown. Terga with slight blue metallic lustre.

Head behind eyes slightly narrowed. Antenna 2.0× as long as maximum head width; flagellum not enlarged, somewhat flattened towards apex, ventral carina distinctly compressed. Other features as for female. Genitalia: Figs 116G-I.

Length: 5.0 mm.

Etymology

This species is named after the Namaqualand, the landscape around the locality of its origin.

Distribution

South Africa (Northern Cape Province) (Fig. 177).

Fig. 117. Habitat of *Triarge namaquaensis* (Succulent Karoo Biome) in the centre of the Namaqualand near Kamieskroon (Northern Cape Province). (Photo by F. Koch)

Ecology and habitat

The habitat (Fig. 117) belongs to the Succulent Karoo Biome of the winter rainfall zone. The flight season is not well known. The specimens were collected in June and September.

Remarks

Intraspecific variability of males is visible in the colouration of the sternum 9 which varies from black to light brown. Furthermore, the posterior margin of sternum 9 may be shallowly emarginated medially. The female of *T. namaquaensis* is clearly distinguished from other species in the sharp, hook-like serrulae (Figs 116E, F). The shape of the penis valve is similar to that of *T. mosselbayensis* and the differential diagnosis is given under that species.

Triarge nigra Koch, 2006

Triarge nigra Koch, 2006b: 227, 233. ♀. Type locality: Pakhuis Pass, C[ape]. P[rovince] (Western Cape Province, South Africa) (SAMC).

Female (Figs 118A, B)

Head and antenna black; apical half of mandible dark reddish brown. Thorax black. Legs black; apices of femora very narrowly light brown, basal third of hind tibia light brown. Wings hyaline, in apical half very slightly infuscate; fore wing with very small, slightly infuscate substigmal spot; costa, stigma, subcosta, and rest of venation brown. Abdomen black with slight blue metallic lustre.

Head slightly narrowed behind eyes. Antenna 1.3× as long as maximum head width; flagellum slightly enlarged towards apex, triangular in cross section, ventral

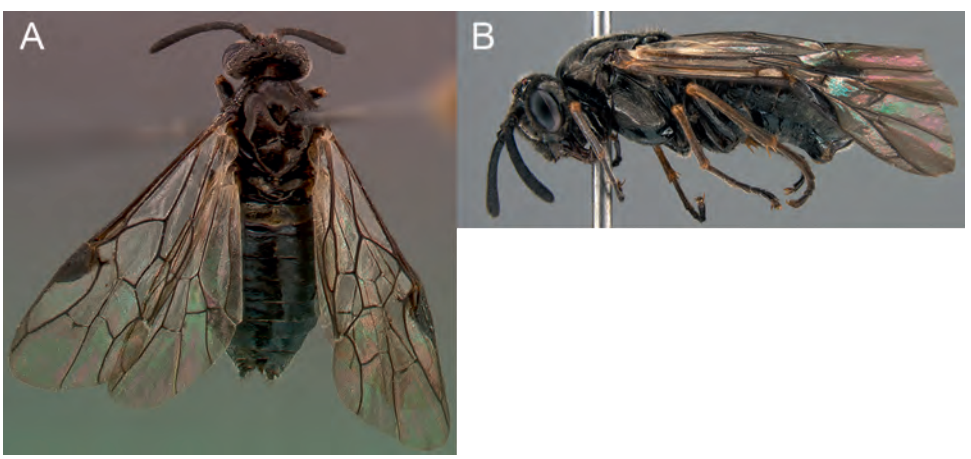

Fig. 118. A-B. *Triarge nigra*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

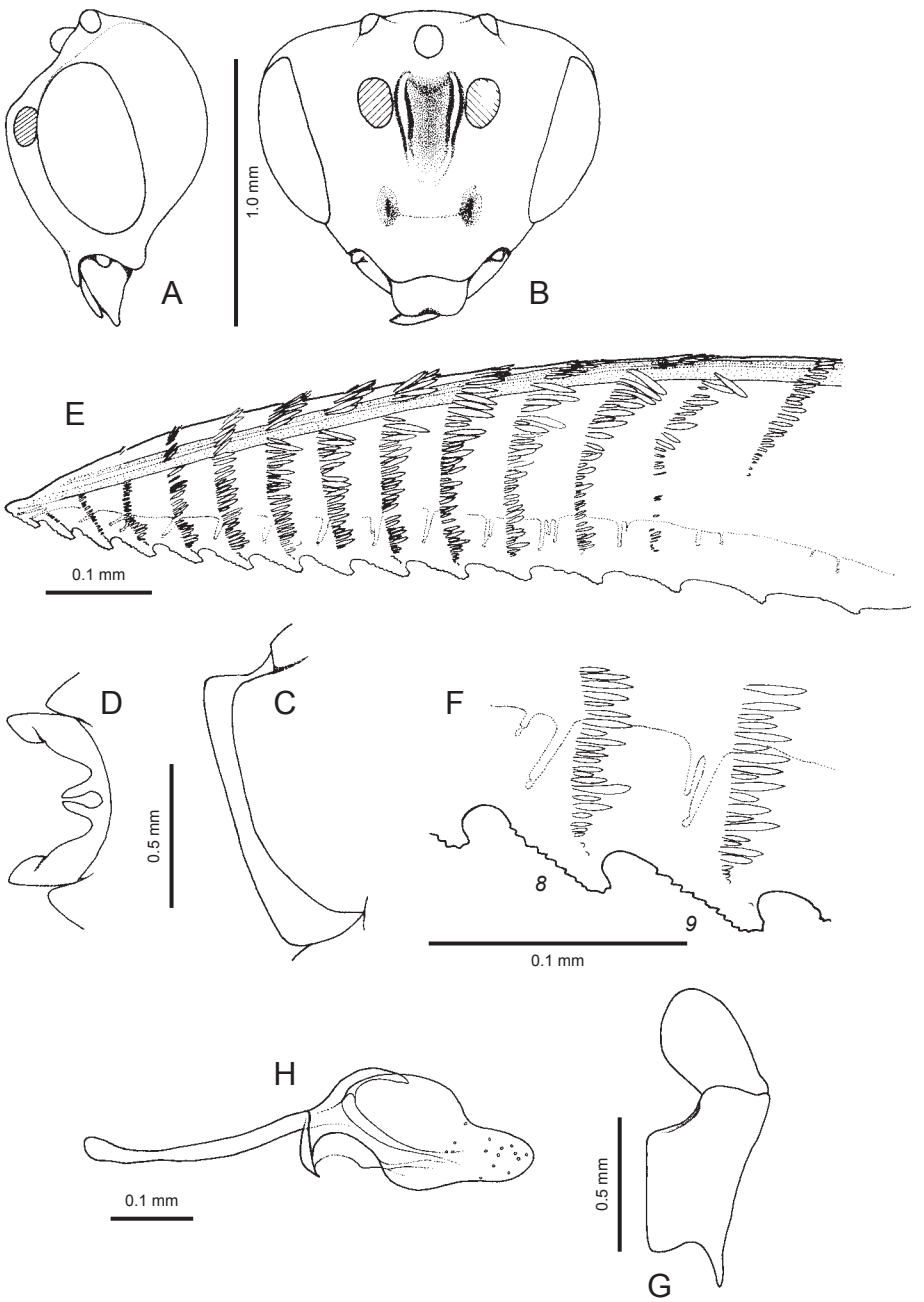

Fig. 119. A-H. *Triarge nigra*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9. **G**. Parapenis and harpe (right, ventral aspect). **H**. Penis valve (left, lateral aspect).

surface with moderately compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes slightly converging downwards. Anterior margin of clypeus very shallowly circularly emarginate, supraclypeal area very flatly rounded up to start of interantennal carinae (Fig. 119A), interantennal carinae sharply ridged between antennae, scarcely converging downwards, extending about one quarter of way to clypeus (Fig. 119B).

Vertex, frons, gena, clypeus, and supraclypeal area scattered micropunctate, shiny; pubescence white. Mesoscutum scarcely micropunctate, shiny, with pubescence similar to head. Abdomen shiny; terga contiguously micropunctate on basal half and with transverse microsculpture on apical half. Sawsheath: Figs 119C, D. Lancet with about 15 serrulae (Figs 119E, F).

Length: 6.8-7.5 mm.

Male

Colouration similar to that of female. Costa, stigma, subcosta, and rest of venation veins dark brown. Terga with slight blue metallic lustre.

Head behind eyes slightly narrowed. Antenna 2.5× as long as maximum head width; flagellum not enlarged, flattened towards apex, ventral carina distinctly compressed. Other features as for female. Genitalia: Figs 119G, H.

Fig. 120. The habitat (Sandstone Fynbos) of *Triarge nigra* in the Cederberg Mountains near Clanwilliam (Western Cape Province). (Photo by F. Koch)

Length: 5.5 mm.

Etymology

The specific name refers to the almost entirely black body of the imago.

Distribution

South Africa (Western Cape Province) (Fig. 176).

Ecology and habitat

The habitats are located in the Mountain Fynbos vegetation type of the winter rainfall zone (Fig. 120). The flight season is not well known. The specimens were collected in August and September.

Remarks

In its morphological structures *T. nigra* could be confused with *T. citrusdalensis*. The differential diagnosis is discussed under the latter species.

The shape of serrulae in *T. nigra* is most similar to *T. mosselbayensis* (Figs 115E, F) and *T. plumbea* (Figs 121E, F), but in these species the serrulae are flatter and in dorsal view the shape of their sawsheaths (Figs 115D, 121D) is distinctly different.

The male of this species is described here for the first time.

Triarge plumbea Forsius, 1931

Triarge plumbea Forsius, 1931: 19. ♀. Type locality: Ceres, Cape Province (Western Cape Province, South Africa) (BMNH).

Female

Head and antenna black; apical half of mandible light brown. Thorax black. Legs black; apices of femora very narrowly light brown, basal third of tibiae light brown, gradually becoming brown apically, anterior surface of hind tibia dirty whitish, downwards from the preapical spine brown. Wings hyaline; apical half slightly flavescent-hyaline infused, fore wing with very small, slightly infuscate substigmal spot; costa, stigma, subcosta, and rest of venation light brown. Abdomen black with slight blue metallic lustre.

Head slightly narrowed behind eyes. Antenna 1.6× as long as maximum head width; flagellum slightly enlarged towards apex, triangular in cross section, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae weaker compressed. Eyes converging downwards. Anterior margin of clypeus shallowly emarginate medially, supraclypeal area very flatly rounded to the point of interantennal carinae (Fig. 121A), interantennal carinae sharply ridged between antennae, converging downwards, ending about half way to clypeus (Fig. 121B).

Vertex, frons, gena, clypeus, and supraclypeal area scattered micropunctate, shiny; pubescence white. Mesoscutum scarcely micropunctate, shiny; pubescence similar to head. Abdomen moderately shiny; terga with distinctly transverse microsculpture. Sawsheath. Figs 121C, D. Lancet with about 15 serrulae (Figs 121E, F).

Length: 6.8 mm.

Male

Unknown.

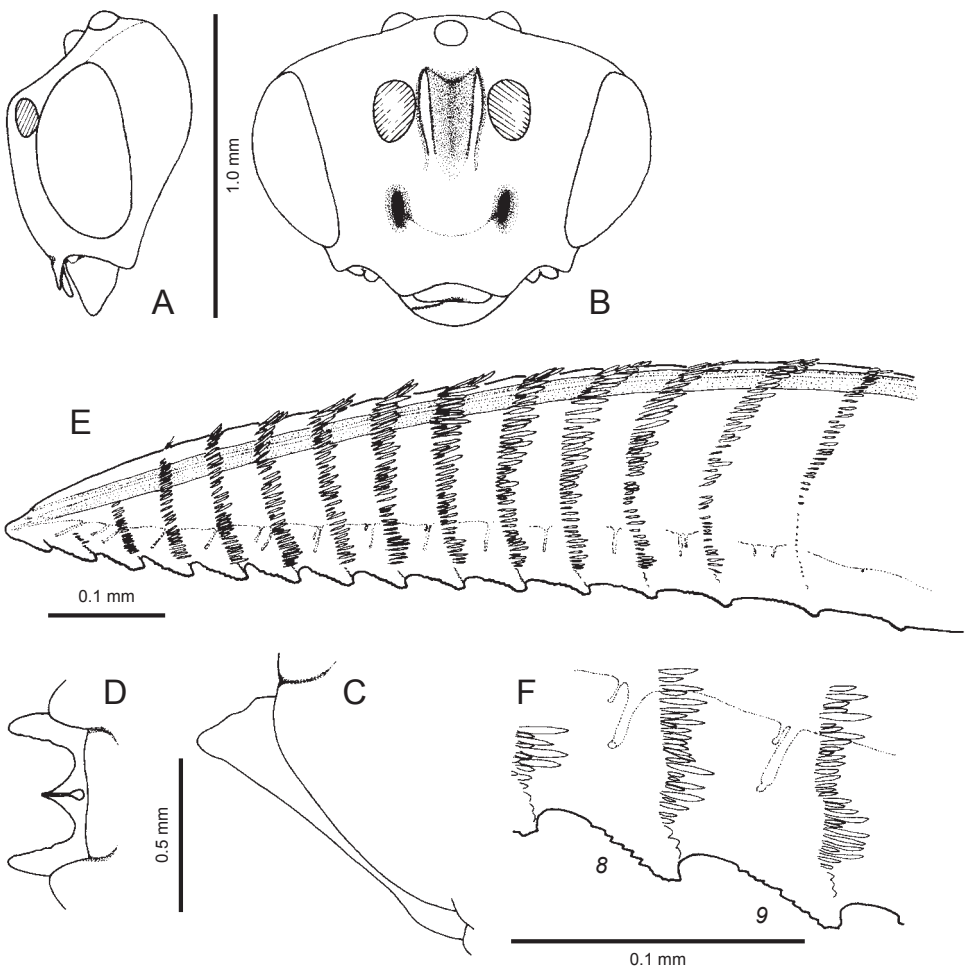

Fig. 121. A-F. *Triarge plumbea*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9.

Etymology

The Latin adjective *plumbea* means “coloured like lead”, and refers to the body colour.

Distribution

South Africa (Western Cape Province) (Fig. 177).

Ecology and habitat

The type locality belongs to the Mountain Fynbos vegetation type of the winter rainfall zone. The flight season is poorly known, only one specimen has been collected, in November.

Remarks

The paratypes of *T. plumbea* from Mossel Bay belong *T. mosselbayensis* (Koch 2006b).

The apical gap in the sawsheath of *T. mosselbayensis* (Fig. 115D) is conspicuously wider than in *T. plumbea*. The abdomen of *T. mosselbayensis* is contiguously micropunctate and without blue metallic lustre.

Triarge winterhoekensis Koch, 2006

Triarge winterhoekensis Koch, 2006b: 227, 236. ♀. Type locality: Gt.[Great] Winthoek [Winterhoek], Tulbagh (Western Cape Province, South Africa) (SAMC).

Female

Head and antenna black; apical half of mandible dark reddish brown. Thorax black. Legs black; apices of femora very narrowly light brown, tibiae light brown, hind tibia becoming somewhat darker apically. Wings slightly flavescent-hyaline; fore wing with very small, slightly infuscate substigmal spot; costa, stigma, subcosta, and rest of venation light brown. Abdomen black without blue metallic lustre.

Head scarcely narrowed behind eyes. Antenna 1.4× as long as maximum head width; flagellum slightly enlarged towards apex, quadrangular in cross section, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae weaker compressed. Eyes slightly converging downwards. Anterior margin of clypeus very shallowly circularly emarginate, supraclypeal area nearly flatly rising up to start of interantennal carinae (Fig. 122A), interantennal carinae moderately ridged between antennae, scarcely converging downwards, very short, extending at the anterior margin of toruli (Fig. 122B).

Vertex, frons, gena, clypeus, and supraclypeal area scarcely micropunctate, shiny; pubescence white. Mesoscutum scarcely micropunctate, pubescence similar to that on head. Abdomen shiny; terga with transverse microsculpture. Sawsheath: Figs 122C, D. Lancet with about 15 serrulae (Figs 122E, F).

Length: 5.5-6.0 mm.

Male

Unknown.

Etymology

This species is named after its collection locality, Great Winterhoek (shortened on the label).

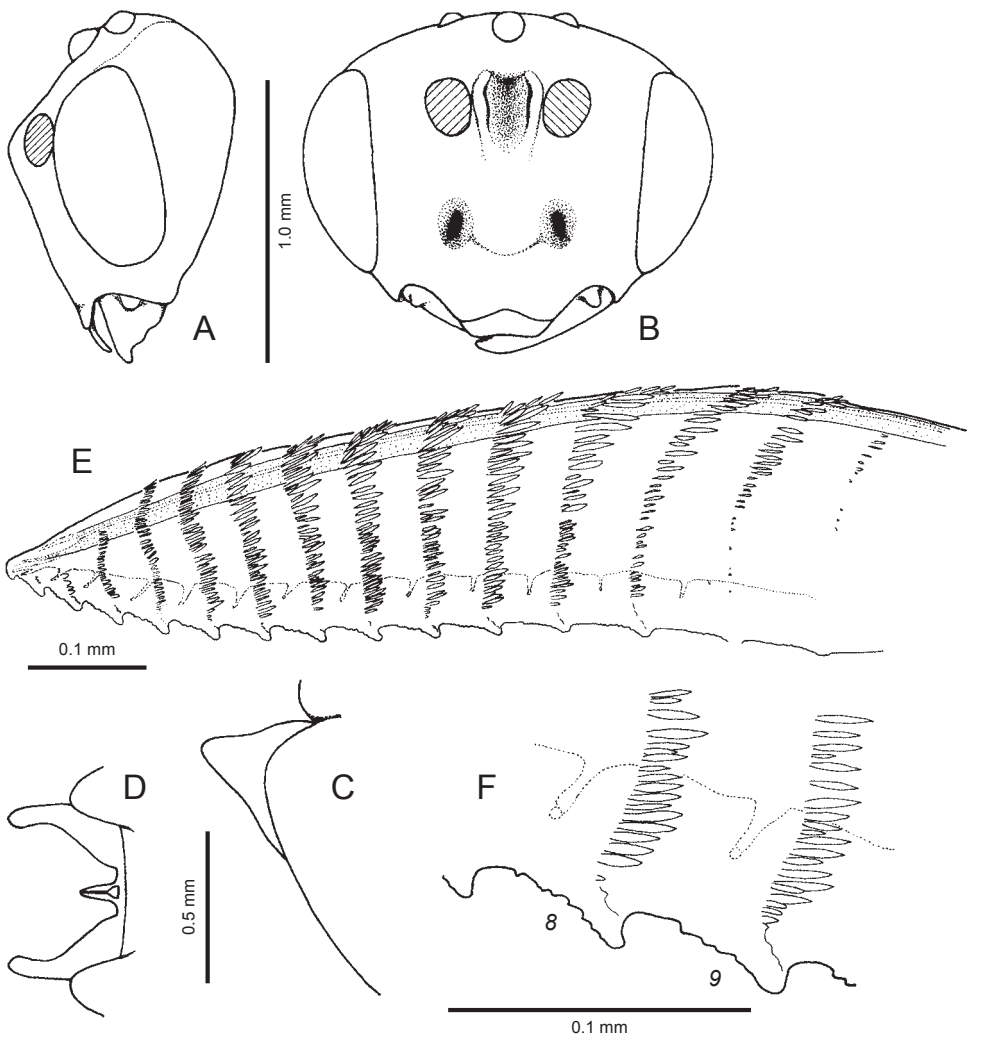

Fig. 122. A-F. *Triarge winterhoekensis*. **A**. Head of female (lateral aspect). **B**. Head (frontal aspect). **C**. Sawsheath (lateral aspect). **D**. Sawsheath (dorsal aspect). **E**. Lancet. **F**. Serrulae 8-9.

Distribution

South Africa (Western Cape Province) (Fig. 176).

Ecology and habitat

The habitat belongs to the Mountain Fynbos vegetation type of the winter rainfall zone. The flight season is not well known, some specimens have been recorded in November.

Remarks

The distinct short interantennal carina and relatively narrowed apical gap of the sawsheath differentiate *Triarge winterhoekensis* from the other known *Triarge* species. The shape of serrulae resembles *T. citrusdalensis* (Figs 107E, F). The differences between these two species are discussed under *T. citrusdalensis*.

Family Tenthredinidae

Subfamily Athaliinae

Genus *Athalia* Leach, 1817

Athalia Leach, 1817: 126. Type species: *Tenthredo spinarum* Fabricius, 1793 [= *Athalia rosae rosae* (Linnaeus, 1758)], by subsequent designation of Curtis (1836). http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Athaliinae/Athalia/index.htm

Description

Antenna moderately long, 9(10)-12-segmented, apical flagellomere mostly indistinctly separated, distal flagellomeres often slightly broader than long (Figs 123D, 125A, 128A, 130B, C, 134C). Head without especially conspicuous structures, surface smooth and shiny; clypeus separated by epistomal suture from supraclypeal area (Figs 123A-C); clypeus elongate medially and rounded at anterior margin (Fig. 123A) as for *Athalia* "*incomta*" species group, truncated to subtruncated at anterior margin (Fig. 123B) as for *A. himantopus* species group (Koch 2007), or very short medially and conspicuously excised at anterior margin (Fig. 123C) as for *A. vollenhoveni* species group (Koch 2006c); malar space variably developed in female, in male almost linear or absent; frontal area indistinctly limited; lateral furrows of postocellar area indistinct. Tarsal claws simple (Fig. 123E). Fore wing with radial crossvein (2r) present, anal cell with crossvein (a), 2nd and 3rd anal vein (2A+3A) outlined (Fig. 41K); hind wing with closed radial cell (R1), petiolate (1A) anal cell (A) and two middle cells (Rs and M) (Fig. 41K). Tergum 1 with rather wide and deep median split (Fig. 123F).

Head predominantly black; thorax yellowish with black markings or completely black; abdomen entirely yellow or with tergum 1 more or less black.

Ranging from 4.5-9.5 mm in length.

Remarks

The species of the genus *Athalia* are distributed in the Afrotropical, Oriental and Palaearctic Region. Currently 48 valid species are known from the Afrotropical Region: Taeger *et al*. (2010) listed 46 species and additionally Koch (2010b) described two further species for southern Africa. Only two of the species groups have been recently revised: *Athalia vollenhoveni* species group (Koch 2006c), 10 species with excised anterior margin of clypeus (Fig. 123C), and *A. himantopus* species group (Koch 2007), 8 species with truncated or subtruncated anterior margin of clypeus (Fig. 123B).

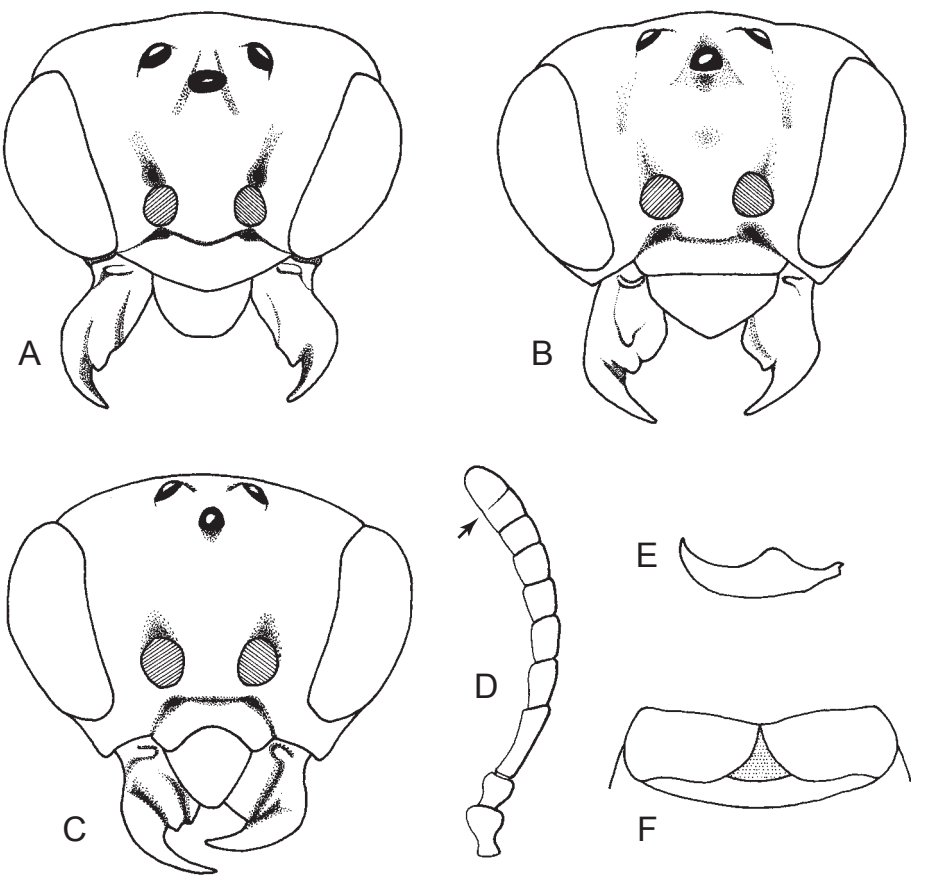

Fig. 123. A-F. *Athalia* spp. Frontal aspect of head: **A**. *Athalia* "*incomta*" species group. **B**. *Athalia himantopus* species group. **C**. *Athalia vollenhoveni* species group. **D**. antenna (apical flagellomere indistinctly separated. arrowed). **E**. tarsal claw. **F**. tergum 1.

Sexual dimorphism of *Athalia* is relatively highly developed. The malar space of the male is conspicuously narrower than in the female. The male usually differs from the female by having a pale clypeus. The thorax of the male is uniformly pubescent, but in the female of several species there is a more or less large glabrous patch on the mesosternum.

For a correct identification of males it is necessary to examine the genitalia, especially the digitus and cuspis. In females the shape of the hypopygium is of importance for their classification.

Host plants

Most information on host plants is from Benson (1962) or based on notes on the labels. For most species reliable details are missing. The larvae of several species feed on different species of Brassicaceae (Benson 1962). Opitz *et al.* (2012) pioneered a new approach to identification of host plants, based on chemicals derived from the host that are sequestered in the adults. These results are discussed under the applicable species in the following treatments.

Adults commonly visit flowers or plants other than the larval hosts (Smith 1989). For example in 2001 *Athalia gessi* Koch, 2003 and *A. mashonensis* Enslin, 1911 were sampled in large numbers on the flowers of the Lemon Bush / Fever tea (*Lippia javanica* (Burman f.) Sprengel) (Verbenaceae) in the Lekgalameetse Nature Reserve, Limpopo Province, South Africa (Koch 2003).

Athalia brevicornis **Benson, 1962**

Athalia brevicornis Benson, 1962: 358, 361. ♂♀. Type locality: Maseru, Basutoland [Lesotho] (BMNH).

Athalia limpopo Benson, 1962: 373, 374, **syn. n.** ♀. Type locality: Delagoa Bay, Mozambique (BMNH).

Fig. 124. A-B. *Athalia brevicornis*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Female (Figs 124A, B)

Head black, supraclypeal area pale; basal half of mandible whitish becoming reddish to dark reddish apically; labrum and clypeus dirty whitish; ventral surface of antenna pale. Thorax yellow with mesoscutum black and basal half of mesoscutellum blackish. Legs yellow; hind tibia and hind tarsomeres black ringed apically. Wings slightly bicoloured with very slightly flavescent-hyaline in basal half and very slightly infuscate apically; intercostal area fuscous, stigma, costa and subcosta dark brown, rest of venation yellow, in apical half somewhat darker. Abdomen entirely yellow with apical half of sawsheath black.

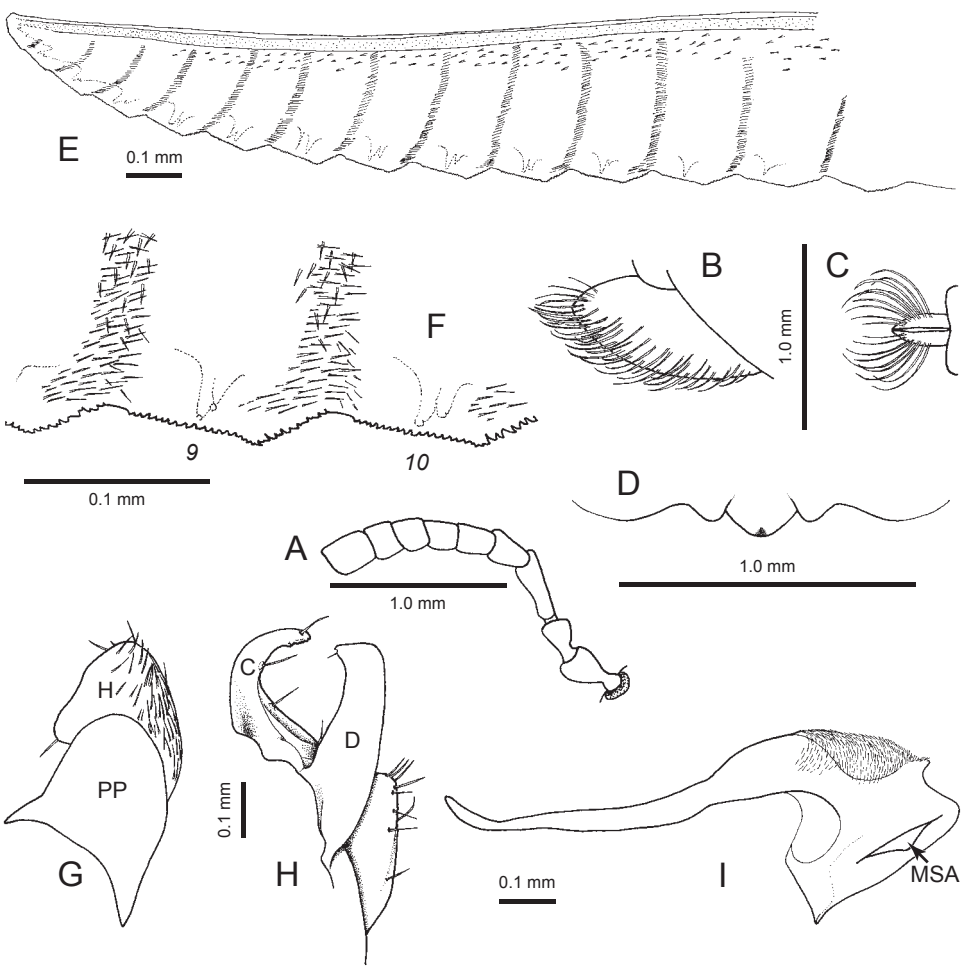

Fig. 125. A-I. *Athalia brevicornis*. **A**. Antenna. **B**. Sawsheath (lateral aspect). **C**. Sawsheath (dorsal aspect). **D**. Hypopygium (posterior margin). **E**. Lancet. **F**. Serrulae 9-10. **G**. Parapenis and harpe (right, ventral aspect). **H**. Cuspis and digitus (left, inner lateral aspect). **I**. Penis valve (left, lateral aspect), MSA (arrowed).

Antenna 1.2× as long as maximum head width, slightly enlarged towards apex, 9-segmented (Fig. 125A). Clypeus elongate medially, anterior margin rounded. Malar space absent.

Head and thorax moderately densely micropunctate, shiny; pubescence on head and mesoscutum whitish. Abdomen smooth and shiny. Sawsheath in lateral view obtusely pointed apically (Fig. 125B), in dorsal view narrowed and pointed apically (Fig. 125C), Hypopygium: Fig. 125D. Lancet with about 14 serrulae (Figs 125E, F).

Length: 5.7-7.5 mm.

Male

Colouration similar to that of female. Antenna 1.2× as long as maximum head width, somewhat more enlarged as in female. Other features as for female. Genitalia: Figs 125G-I.

Length: 4.8-5.7 mm.

Etymology

The Latin adjective *brevicornis* means “short-horned”, with reference to the short antennae.

Fig. 126. The habitat of *Athalia brevicornis* and *A. ustipennis* in the riverine vegetation along the Kunene River in north-western Namibia (Thornbush Savanna Biome). (Photo by F. Koch)

Distribution

Botswana, Lesotho, Malawi, Mozambique, Namibia (Region: Kunene, Okavango, Otjozondjupa) South Africa (Province: Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo) (Fig. 178), Zambia, Zimbabwe.

Host plant

Unknown.

Ecology and habitat

The Namibian collection sites are situated in riverine habitats on the Kunene River (Fig. 126), Okavango [Kavango]-River as well as in the Caprivi Strip, which are located in the Thornbush Savanna and Woodland Savanna Biomes. It appears that *A. brevicornis* prefers moist habitats with dense vegetation. The flight season is from December to April.

Remarks

Intraspecific variability of this species is apparent in the colouration of the supraclypeal area and mesoscutellum. The supraclypeal area may be nearly entirely black especially in females. The same applies to the colouration of the mesoscutellum. Furthermore, the costa and subcosta of the fore wing may be basally more or less yellow. Sometimes the bicolouration of the fore wing is faded.

The holotype of *A. limpopo* was examined, and it was not possible to find any differences to *A. brevicornis*, which are relevant for distinguishing them as different species; thus, it is synonymised with *A. brevicornis*.

Athalia incomta **Konow, 1908**

Athalia incomta Konow, 1908: 168. ♂. Type locality: Algoa Bay, Capland (Eastern Cape Province, South Africa) (SDEI).

Athalia xantha Benson, 1962: 364, 365, **syn. n.** ♀. Type locality: Weenan, Natal [KwaZulu-Natal Province], South Africa (BMNH).

Female (Figs 127A, B)

Head black; basal half of mandible whitish becoming reddish to dark reddish apically; clypeus sometimes brown or dirty yellow, labrum whitish; ventral surface of flagellum brownish. Thorax black with following yellow; metascutellum, mesosternum and metapleuron sometimes with blackish spot. Legs yellow; hind tibia with black apex, distal tarsomeres of fore and mid legs as well as hind tarsomeres black ringed apically. Wings sharply bicoloured with flavescent basal half and dark fuscous apical half, intercostal area blackish infuscate; stigma, costa and subcosta black, rest of venation yellow in basal half becoming blackish apically. Abdomen yellow; sawsheath with black apical half.

Antenna length 1.4× as long as maximum head width, 11-12-segmented, flagellomeres 11,12 mostly indistinctly separated (Fig. 128A). Clypeus elongate medially, anterior margin shallowly rounded. Malar space very narrowly developed. Head smooth and shiny, clypeus with scattered, flat punctures, shiny; pubescence greyish-brown. Mesoscutum smooth and shiny; pubescence similar to that on head. Abdomen smooth and shiny, tergum1 slightly microsculptured. Sawsheath in lateral view obtusely pointed apically (Fig. 128B), in dorsal view slightly narrowed and obtusely pointed apically (Fig. 128C). Hypopygium as in Fig. 128D. Lancet with about 16 serrulae (Fig. 128E).

Length: 6,0-8,5 mm.

Male

Colouration similar to that of female. Clypeus whitish. Antenna 1.2× as long as maximum head width. Other features as for female. Genitalia: Figs 128G-H.

Length: 5.5-7.0 mm.

Etymology

The species name is a Latin adjective meaning untidy or unadorned.

Distribution

Botswana, Lesotho, Malawi, Namibia (Otjozondjupa Region), South Africa (Province: Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga) (Fig. 179), Zambia, Zimbabwe, (Democratic Republic of the Congo, Benson 1962).

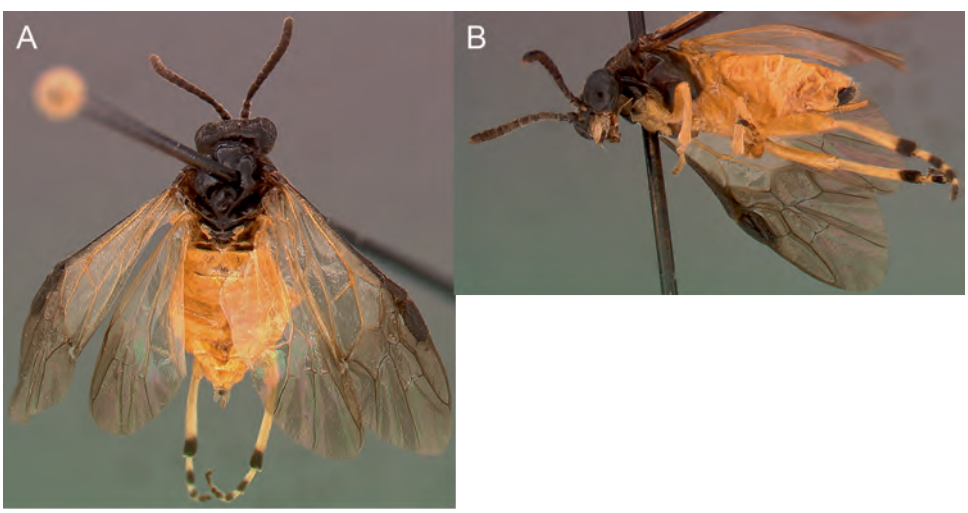

Fig. 127. A-B. *Athalia incomta*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Host plant

Adults were repeatedly observed on *Selago dinteri* Rolfe (Scrophulariaceae, Lamiales) on the plateau of the Waterberg. Based on biochemical analyses Opitz *et al*. (2012) determined plant species of Lamiales as host plants.

Ecology and habitat

Collected at the foot of and slightly higher up the Waterberg Mountain (Namibia) (Thornbush Savanna Biome), and in the Caprivi Strip in the Woodland Savanna Biome. The habitat is moist with dense vegetation (Fig. 24). All specimens were collected in February.

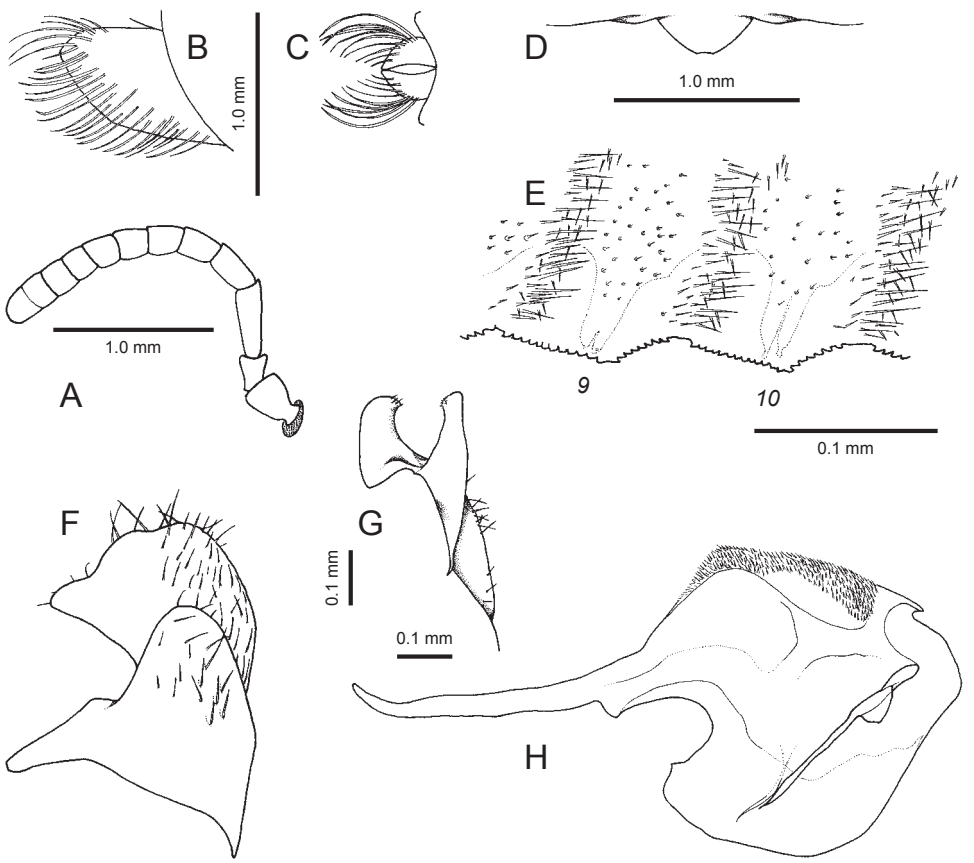

Fig. 128. A-H. *Athalia incomta*. **A**. Antenna. **B**. Sawsheath (lateral aspect). **C**. Sawsheath (dorsal aspect). **D**. Hypopygium (posterior margin). **E**. Serrulae 9-10. **F**. Parapenis and harpe (right, ventral aspect). **G**. Cuspis and digitus (left, inner lateral aspect). **H**. Penis valve (left,lateral aspect).

Remarks

At the first glance *Athalia incomta* is easy to recognize by its pattern of colouration – yellow mesosternum and bicoloured wings. Furthermore *A. incomta* is one of the most abundant sawfly species in southern Africa. In the Eastern provinces of South Africa and Zimbabwe this species is sampled regularly on *Tecomaria capensis* (Thunberg) Spach (Bignoniaceae). In the mountain region of the provinces Limpopo and Mpumalanga adults were collected on *Helichrysum krausii* (Schultz Bipontinus) (Asteraceae).

Prompted by the wide distribution of the species and its association with different plants, sequencing of the mitochondrial COI gene was carried out. Provisionally, it seems that three different species may be involved, but distinct morphological differences have not so far been found.

The holotype of *A. xantha* was examined, and it was not possible to find any differences to *A. incomta*, which are relevant for distinguishing them as different species; thus, it is synonymised with *A. incomta*.

Athalia maraisi Koch, 2010

Athalia maraisi Koch, 2010b: 279. ♂♀. Type locality: Okaputa, Grootfontein, Namibia (NNIC).

Fig. 129. A-B. *Athalia maraisi*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Female (Figs 129A, B)

Head black, narrow ventral angle of gena and malar space yellow; mandible yellow becoming brown to black apically; clypeus and labrum yellow; ventral surface of flagellum and scape light brown. Thorax yellow with following black: dorsal part of propleuron, pronotom medially, mesonotum, dorso-lateral margin of mesopleuron. Legs yellow; hind tibia black ringed apically, hind tarsus black with tarsomeres 1-3 yellow ringed basally. Wings slightly bicoloured, with basal half slightly flavescent-hyaline and apical half slightly infuscate; costa black with narrow yellow base, stigma and subcosta black, rest of venation yellow becoming blackish in apical half. Abdomen yellow; sawsheath with black apex.

Antenna 11-segmented, 1.2× as long as maximum head width, flagellomeres 9,10 conspicuously broader than long (Figs 130B, C). Clypeus slightly elongated medially, anterior margin shallowly rounded (Fig. 130A). Malar space very narrowly developed. Head smooth and shiny, clypeus with scattered, flat punctures, shiny;

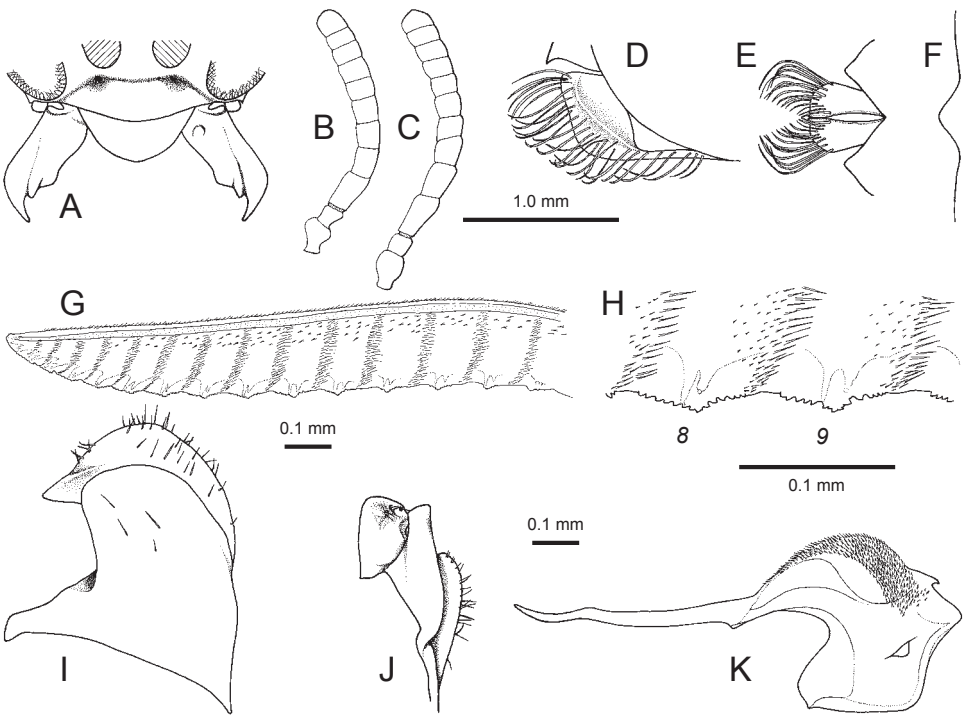

Fig. 130. A-K. *Athalia maraisi*. **A**. Female, mouthparts with clypeus (frontal aspect). **B–C**. Female, antenna. **D**. Sawsheath (lateral aspect). **E**. Sawsheath (dorsal aspect). **F**. Hypopygium (posterior margin). **G**. Lancet. **H**. Serrulae 8-9. **I**. Parapenis and harpe (right, ventral aspect). **J**. Cuspis and digitus (left, inner lateral aspect). **K**. Penis valve (left, lateral aspect).

pubescence light yellow to whitish. Mesoscutum smooth and shiny; pubescence similar to that on head. Sawsheath in lateral view obtusely pointed (Fig. 130D), in dorsal view conspicuously enlarged apically (Fig. 130E). Hypopygium as in Fig. 130F. Lancet with about 15-16 serrulae (Figs 130G, H).

Length: 7.0-7.8 mm.

Male

Colouration similar to that of female. Pronotum black except narrow yellow lateral margin, propleuron and dorsal part of mesopleuron black. Antenna 1.3× as long as maximum head width. Malar space absent. Pubescence similar to that of female. Other features as for female. Genitalia: Figs 130I-K.

Length: 6.7 mm.

Etymology

The species was named after Eugene Marais, Curator of Entomology of the Namibian National Insect Collection, Windhoek.

Distribution

Namibia (Region: Erongo, Khomas, Kunene, Otjozondjupa, (Fig. 178), South Africa (Free State Province).

Host plant

Unknown.

Ecology and habitat

All sampling localities belong to the Thornbush Savanna Biome. The flight season is December and February to March.

Remarks

Athalia maraisi differs from all other *Athalia* species of the study region by the conspicuous enlargement of the sawsheath towards the apex.

Variability of *A. maraisi* is apparent in the colour pattern. The yellow colouration on the head and thorax may be extended, so that the supraclypeal area, scape, pronotum, propleuron and mesopleuron are entirely yellow. Additionally, the antero-lateral angle of the mesonotal median lobe, mesoscutellum, mesoscutellar appendage and metanotum are more or less yellow, and the down-turned portion of each mesonotal lateral lobe is light brown. In males, the scape and pedicel may be entirely yellow. In the female from the locality “Sandveld Nature Reserve” (Free State Province, South Africa) the antenna is 12-segmented (Fig. 130C).

Athalia marginipennis Enderlein, 1920

Athalia marginipennis Enderlein, 1920: 354. ♀. Type locality: Nyembe-Bulungwa, Deutsch-Ostafrika [Tanzania] (ZMPA).

Female (Figs 131A, B)

Head and antenna black; basal half of mandible whitish becoming dark reddish apically; clypeus brown with dirty yellow anterior margin, labrum light brown. Thorax black; metascutellum yellow, metepisternum with narrow yellow posterior margin. Legs yellow; fore and mid coxa narrowly at base and lateral surface more or less blackish, hind coxa with very small blackish spot at extreme base; tibiae apically black, broadening from front to rear, tarsomeres1-3 black ringed apically, tarsomeres 4,5 entirely black. Wings bicoloured, with basal half slightly flavescent-hyaline and apical half infuscate; intercostal area strongly infuscate; costa, subcosta and stigma dark brown, rest of venation yellow in basal half becoming brown in apical half. Abdomen yellow; tergum 1 with two blackish medial spots, sawsheath with black apical half.

Antenna 1.4× as long as maximum head width, 10-segmented. Clypeus truncated. Malar space conspicuously developed (Fig. 132). Head smooth and shiny, clypeus moderately densely punctate; pubescence on head whitish to yellowish. Mesoscutum smooth and shiny; mesonotum yellowish pubescent, mesopleuron whitish pubescent with a small glabrous ventro-lateral patch, mesosternum with a large conspicuous glabrous patch. Abdomen smooth and shiny. Sawsheath in lateral view narrowly rounded apically (Fig. 132B), in dorsal view parallel sided and obtusely pointed apically (Fig. 132C). Hypopygium as in Fig. 132D. Lancet with about 16 serrulae (Fig. 132E).

Length: 7.5–9.3 mm

Fig. 131. A-B. *Athalia marginipennis*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Male

Colouration similar to that of female, except for: clypeus whitish, metapleuron nearly entirely yellow and mid coxa very narrowly blackish at base. Mesopleuron and mesosternum rather densely white pubescent, without glabrous patch. Antenna 1.4× as long as maximum head width, very slightly enlarged towards apex. Other features as for female. Genitalia: Figs 132F-H.

Length: 7.0–8.3 mm.

Etymology

From Latin: *margini* (margined) and *pennis* (wing), referring to the bicoloured fore wing.

Distribution

Botswana , Burundi, Democratic Republic of Congo, Kenya, Lesotho, Malawi, Namibia (Region: Kunene, Okavango) (Fig. 179), Rwanda, South Africa (Province:

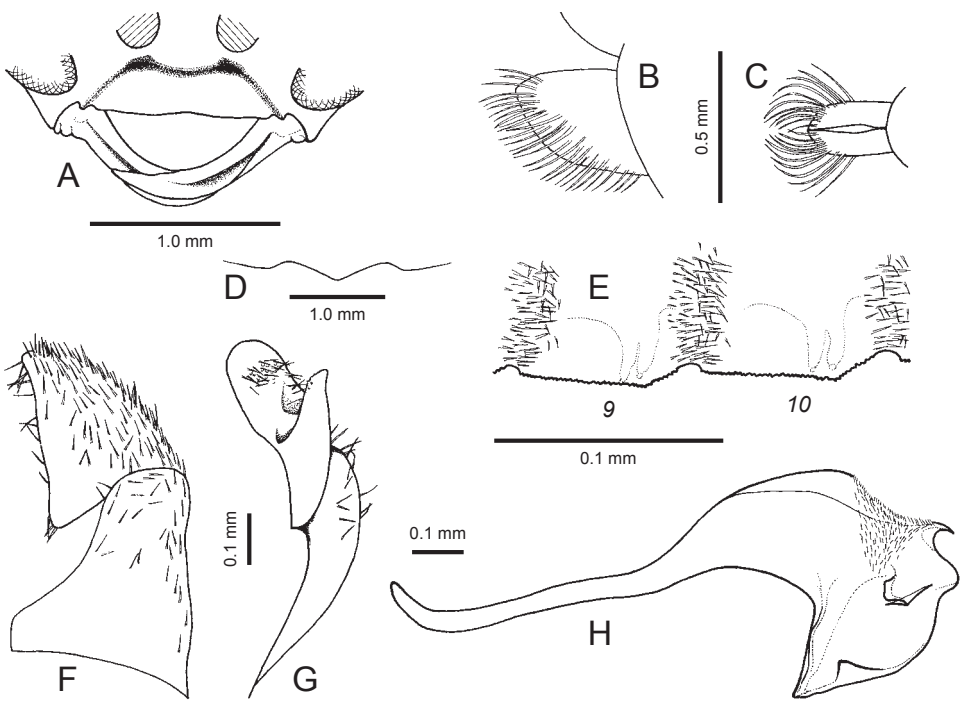

Fig. 132. A-H. *Athalia marginipennis*. **A**. Female, mouthparts with clypeus (frontal aspect). **B**. Sawsheath (lateral aspect). **C**. Sawsheath (dorsal aspect). **D**. Hypopygium (posterior margin). **E**. Serrulae 9-10. **F**. Parapenis and harpe (right, ventral aspect). **G**. Cuspis and digitus (left, inner lateral aspect). **H**. Penis valve (left, lateral aspect).

Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, North West), Tanzania, Uganda, Zimbabwe; detailed distribution is presented by Koch (2007).

Host plant

Brassicaceae (Opitz *et al*. 2012).

Ecology and habitat

The Namibian collection sites are located on the Okavango [Kavango] River as well as at the foot of the Waterberg (Fig. 24). Some old records are known from the Kaokoveld. The more or less moist habitats with dense and species rich vegetation belong to the Woodland Savanna Biome and the Thornbush Savanna Biome. The flight season is from January to March.

Remarks

Athalia marginipennis belongs to the *A. himantopus* species group (Koch 2007), and is clearly distinguished by the truncated clypeus from all other *Athalia* species in Namibia.

***Athalia turneri* Forsius, 1931**

Athalia turneri Forsius, 1931: 21. ♀. Type locality: Okahandja, South West Africa [Namibia] (BMNH).

Female (Figs 133A, B)

Head black, narrow ventral angle of gena and supraclypeal area yellow; basal half of mandible whitish becoming reddish to black apically; clypeus and labrum whitish; scape and pedicel yellow, ventral surface of flagellum yellowish brown.

Fig. 133. A-B. *Athalia turneri*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by B. Schurian)

Thorax yellow with median lobe of mesoscutum blackish. Legs yellow; hind tibia narrowly blackish apically, hind tarsomeres blackish ringed in apical half. Wings subhyaline throughout; intercostal area infuscate, costa blackish with yellow basal half, stigma and subcosta blackish, rest of venation brown. Abdomen yellow; sawsheath with black apical half.

Antenna short, 1.1× as long as maximum head width, 9-segmented, conspicuously enlarged towards apex (Fig. 134C). Clypeus elongated medially, anterior margin shallowly rounded (Fig. 134B). Malar space absent. Maxillary palps abnormally elongated (Fig. 134A). Head smooth and shiny, clypeus with scattered, flat

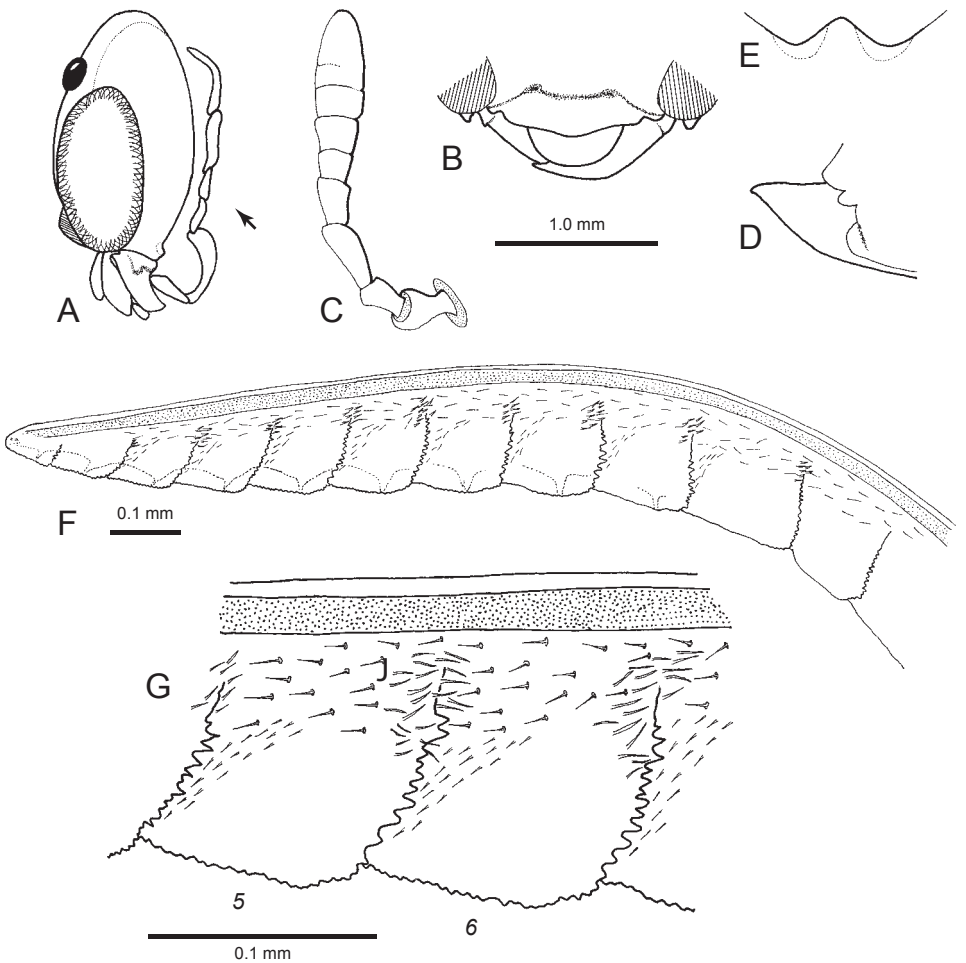

Fig. 134. A-G. *Athalia turneri*. **A**. Head (lateral aspect) with abnormally elongated maxillary palps (arrowed). **B**. Mouthparts with clypeus (frontal aspect). **C**. Antenna. **D**. Sawsheath (lateral aspect). **E**. Hypopygium (posterior margin). **F**. Lancet. **G**. Serrulae 5-6.

punctures, shiny. Pubescence whitish. Thorax smooth and shiny. Pubescence similar to that on head. Abdomen smooth and shiny. Sawsheath in dorsal view narrowed and pointed apically, in lateral view pointed apically (Fig. 134D). Hypopygium as in Fig. 134E. Lancet with about 11 serrulae (Figs 134F,G).

Length: 6.5-9.0 mm.

Male

Unknown.

Etymology

Named after Rowland Edwards Turner (1863-1945; born in Australia, deceased in South Africa), an amateur hymenopterist of major significance, who for many years worked voluntarily for the BMNH and was a recognised specialist on the Thynninae (= Tiphiidae).

Distribution

Namibia (Otjozondjupa Region) (Fig. 180), Zimbabwe.

Host plant

Unknown.

Ecology and habitat

From the study region only the holotype of *A. turneri* is known, collected in February 1928 from Okahandja, which is located in the Thornbush Savanna Biome. The second known specimen of this species was collected in South Zimbabwe (near Breitbridge, Limpopo River) in 1998.

Remarks

Over the past 20 years numerous field trips specifically targeting sawflies were undertaken in the area of Okahandja, but no additional specimens of this species were collected.

Athalia turneri is separated from all other Namibian *Athalia* species by its predominantly yellow colouration and the abnormally elongated maxillary palps.

***Athalia ustipennis* Mocsáry, 1909**

Athalia ustipennis Mocsáry, 1909: 12. ♂. Type locality: Kilima-Ndjaro [Kilimanjaro], Arusha-Ju, Africa orientalis [Tanzania] (HNHM).

Athalia elisabethae Muche, 1979: 55, **syn. n.** ♀. Type locality: Francistown, Botswana (MFN).

Female (Figs 135A, B)

Head black; basal half of mandible whitish becoming reddish to black apically; clypeus yellow, labrum whitish; ventral surface of flagellum pale, apical flagellomere with whitish spot at apex. Thorax yellow with following black; propleuron except for ventral margin, pronotum except for narrow ventro-lateral angle, mesoscutum, anepimeron and anterior half of mesoscutellum, postspiracular sclerite and dorsal angle of mesepisternum blackish, tegula blackish to dirty whitish. Legs yellow with black apices of tibiae, broadening from front to rear; tarsomeres black ringed apically. Wings sharply bicoloured with flavescent basal half and dark fuscous apical half; intercostal area blackish infuscate, stigma, costa and subcosta black, rest of venation yellow in basal half becoming black apically. Abdomen yellow; sawsheath with black apical half.

Antenna length 1.6× as long as maximum head width, 10-segmented. Clypeus elongate medially, anterior margin shallowly rounded. Malar space narrowly developed. Head smooth and shiny, clypeus with scattered, flat punctures, shiny; pubescence greyish-brown. Mesoscutum smooth and shiny; pubescence similar to that on head. Abdomen smooth and shiny. Sawsheath in lateral view obtusely pointed apically (Fig. 136A), in dorsal view slightly narrowed and obtusely pointed apically (Fig. 136B). Hypopygium: Fig. 136C. Lancet with about 18 serrulae (Fig. 136D).

Length: 6.3-7.8 mm.

Male

Colouration similar to that of female; clypeus whitish, supraclypeal area dirty

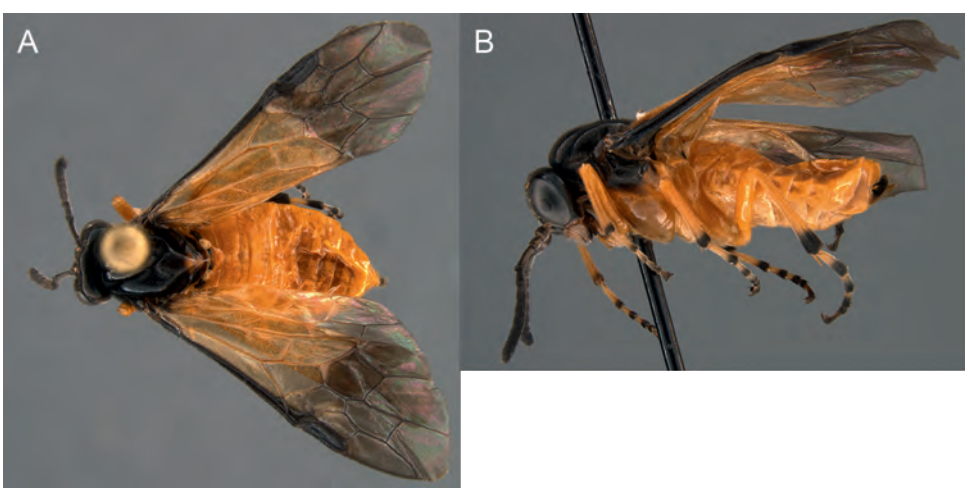

Fig. 135. A-B. *Athalia ustipennis*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by B. Schurian)

whitish, scapus yellow. Antenna 1.2× as long as maximum head width, slightly enlarged towards apex. Other features as for female. Genitalia: Figs 136E-G.

Length: 6.3-7.0 mm.

Etymology

From Latin *usti-* (burnt) and *pennis* (wing), referring to the dark tips of the fore wings.

Distribution

Botswana, Democratic Republic of the Congo, Kenya, Malawi, Namibia (Region: Erongo, Kunene, Omaheke, Otjozondjupa), South Africa (Province: Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga) (Fig. 180), Tanzania, Uganda, Zambia, Zimbabwe.

Host plant

Brassicaceae (Opitz *et al*. 2012).

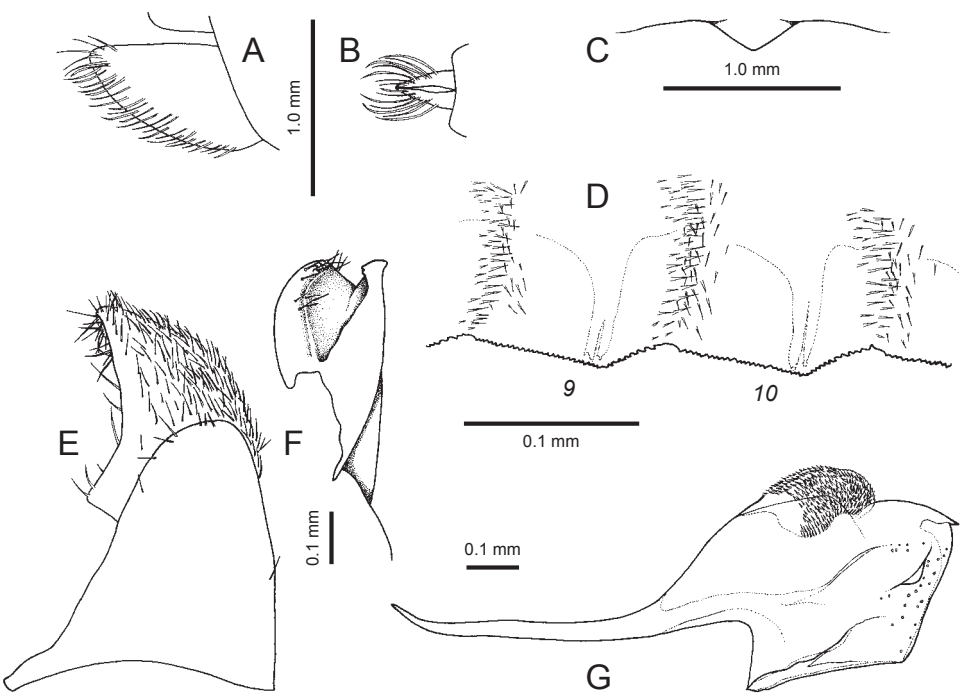

Fig. 136. A-G. *Athalia ustipennis*. **A**. Sawsheath (lateral aspect). **B**. Sawsheath (dorsal aspect). **C**. Hypopygium (posterior margin). **D**. Serrulae 9-10. **E**. Parapenis and harpe (right, ventral aspect). **F**. Cuspis and digitus (left, inner lateral aspect). **G**. Penis valve (left, lateral aspect).

Ecology and habitat

At the foot of the Waterberg adults were repeatedly observed on *Grewia flavescens* Jussieu (Malvaceae). Further records are from the dense vegetation of moist habitats of the Waterberg area and the Kunene River (Fig. 126). All habitats belong to the Woodland Savanna Biome and the Thornbush Savanna Biome.

Despite the great abundance of this species, it has not been possible to discover the host plant. In the area of the Waterberg *A. ustipennis* shows a high attraction to yellow pan traps. The flight season is from February to March.

Remarks

The very widely distributed and common *Athalia ustipennis* is relatively easy to recognize because of its black anepimeron and sharply bicoloured wings. Prompted by its wide distribution, especially in southern Africa, sequencing of the mitochondrial COI gene was carried out. First results point to the existence of two different species, but distinct morphological differences have not so far been found.

Intraspecific variability is especially visible in the colouration of tegulae and mesoscutellum, from entirely black to more or less yellow.

The holotype of *Athalia elisabethae* Muche was examined and compared with that of *A. ustipennis*. It was not possible to find any significant differences between these species, which are relevant for distinguishing them as different species; therefore they are considered to be conspecific.

Subfamily Allantinae

Genus *Neacidiophora* Enslin, 1911

Neacidiophora Enslin,1911, 665. Type species: *Neacidiophora africana* Enslin, 1911 [=*Neacidiophora calo* (Konow, 1907c)], by original designation. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Allantinae/Neacidiophora/index.htm

Netrocerina Enderlein, 1920: 370. Type species: *Netrocerina fuscipennis* Enderlein, 1920 [= *Neacidiophora calo* (Konow, 1907c)], by original designation.

Description

Antenna short, about 1.2-1.5× as long as maximum head width, 9-segmented, medially slightly enlarged, distal flagellomeres slightly broader than long (Fig. 137E) or about twice as long as maximum head width (Koch 1998: 86, fig. 5). Supraantennal crests conspicuously developed (Figs 137B, C); clypeus separated by epistomal suture from supraclypeal area; more or less truncated to subtruncated at anterior margin (Fig. 138A); mandibles subsymmetrical, each with subapical tooth (Fig. 137A); malar space absent (Figs 137A, B); frontal area indistinctly limited; lateral grooves of postocellar area deep. Tarsal claws with a large basal

lobe, subapical tooth larger than the apical one (Fig. 137D). Fore wing with radial crossvein (2r) present, anal cell with crossvein (a), 2nd and 3rd anal vein (2A+3A) outlined (Fig. 41I); hind wing with closed radial cell (R1) and middle cells (Rs and M) absent, anal cell (A) scarcely or very short petiolate (Fig. 41I). Tergum 1 with small median split. Sawsheath in dorsal view enlarged medially and pointed apically.

The head is mostly black, the thorax is black or black with yellowish markings, and the abdomen is predominantly yellow.

Ranging from 6.5-14.0 mm in length.

Remarks

The 16 species (Taeger *et al*. 2010) of the genus *Neacidiophora* are endemic to the Afrotropical Region, and were revised by Koch (1998). Meanwhile, *N. quadrifoveata* Koch, 1998 is recognized as a misidentification and is synonymized with *Kivua incrassata* Pasteels, 1949 by Koch & Liston (2012c). Therefore 15 valid *Neacidiophora* species are known.

Until now only one species namely *Neacidiophora brevicornis* Pasteels, 1954a, is reported for the eastern provinces of South Africa (Koch 1998), however, so far not from the current study area. As a species possessing short antennae (Fig. 137E) it is expected that *N. brevicornis* (Figs 138A-C), is most likely to occur in the Woodland Savanna Biome (Northeast Namibia) along with *Distega bevisi*, *Xenapates eardleyi* and *X. similis*.

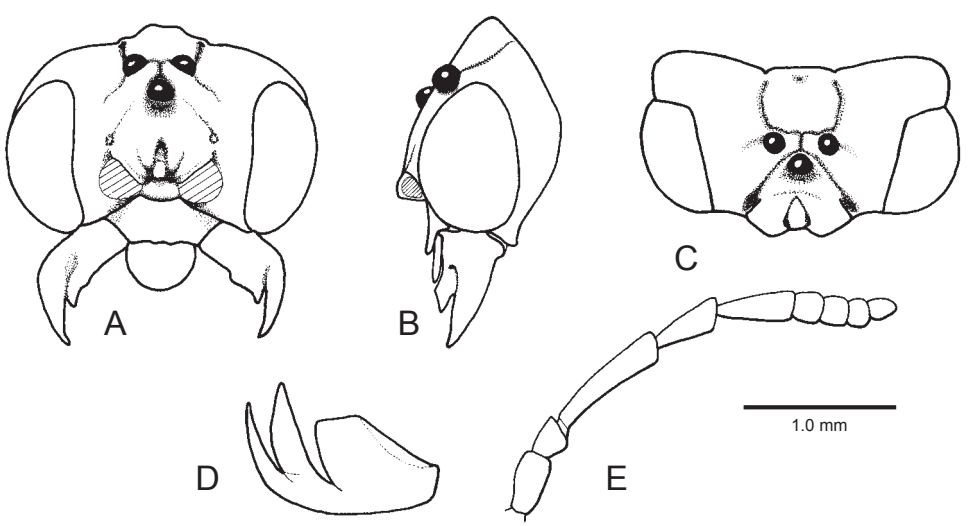

Fig. 137. A-E. *Neacidiophora* sp. **A**. Head (frontal aspect). **B**. Head (lateral aspect). **C**. Head (dorsal aspect). **D**. Tarsal claw. — **E**. *N. brevicornis*. Antenna.

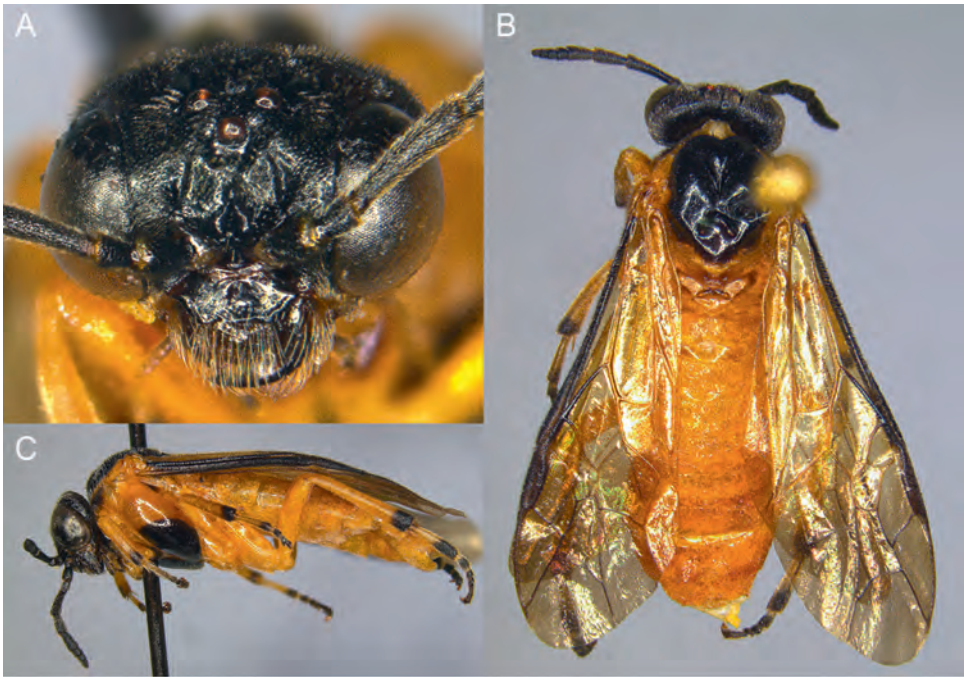

Fig. 138. A-C. *Neacidiophora brevicornis*. **A**. Head (frontal aspect). habitus, male. **B**. Dorsal aspect. **C**. Lateral aspect. (Photos by A.D. Liston)

The species with long antennae are particularly distributed in the equatorial region of Africa (Koch 1998).

Host plants

Nothing is known about their host plants.

Genus *Xenapates* W.F. Kirby, 1882

Xenapates W.F. Kirby, 1882: 180. Type species: *Dineura africana* Cameron, 1876 [= *Xenapates africanus* (Cameron, 1876)], by monotypy. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Allantinae/Xenapates/index.htm

Anataxates Benson, 1939: 122. Type species: *Taxonus gaullei* Konow, 1896 [= *Xenapates gaullei* (Konow, 1896)], by original designation.

Description

Antenna short or about twice as long as maximum head width. In *X. variator* and *X. tessmanni* groups (Koch 1995), mostly 1.5-1.7× as long as maximum head width, 9-segmented (Fig. 142 D). Clypeus separated by epistomal suture from

supraclypeal area; very narrow, anterior margin emarginate with large lateral teeth; mandibles asymmetrical, left mandible with large subbasal tooth; labrum sinistral asymmetrical (Fig. 142A); malar space absent (Figs 142A, B); frons in lateral view obtusely angled (Fig. 142B); frontal area domed, lateral furrows distinctly developed (Figs 142A, C). Tarsal claws with a large basal lobe (Fig. 142E). Fore wing with radial crossvein (2r) present, anal cell with cross vein (a), 2nd and 3rd anal vein (2A+3A) outlined (Fig. 41J); hind wing with closed radial cell (R1), anal cell (A) and two middle cells (Rs and M) (Fig. 41J). Tergum 1 with a wide and deep median split (Fig. 142F).

The Namibian and South African species are mostly black with whitish markings, and short antennae.

Ranging from 6.0-10.0 mm in length.

Remarks

This genus is endemic to the Afrotropical Region, and was recently revised by Koch (1995) with 36 valid species, and now comprises 47 species. Taeger *et al*. (2010) listed 43 species, and additionally a further 4 new species are described by Koch (2012b, c). Most species are recorded from equatorial Africa. In the study region only 4 species are known.

For correct identification, it is necessary to examine the genitalia of males (penis valve) and females (lancet). In females the shape of the serrulae is important for species determination.

Host plants

Nothing is known about the host plants of the species occurring in the study region. In Benin, larvae of *Xenapates braunsi* (Konow, 1896) were found on *Digitaria horizontalis* (Jamaican crabgrass), *Pennisetum purpureum* (elephant grass), and *Setaria barbata* (bristly foxtail grass) (Poaceae), as well as *Zea mays* (corn, maize) (Poaceae), larvae of *Xenapates gaullei* (Konow, 1896) were feeding on *Commelina communis* (Asiatic dayflower) and *C. benghalensis* (Bengal dayflower) (Commelinaceae) (**Chapter 7: Host plants**).

Xenapates beateae Koch, 1996

Xenapates beateae Koch, 1996: 307. ♂. Type locality: 50 km N Sesfontein, Kaokoveld, Namibia (NNIC).

Male (Figs 139A, B)

Head black; apical half of mandible dark reddish; anterior margin of clypeus very narrowly whitish; distal flagellomeres ventrally brightened. Thorax black with following whitish: dorso-lateral angles of pronotum, partly postspiracular sclerite and outer lateral margin of tegula. Legs blackish with following whitish: apical

margin of mid coxa, apical half of hind coxa, trochanters, dorsal surface of fore femur, broadly base and narrow apex of hind femur, fore and mid tibiae, hind tibia except for its broadly blackish apex, fore and mid tarsi, hind tarsus gradually darkened towards apex. Wings hyaline; stigma, costa, subcosta black and rest of venation blackish. Abdomen black; terga with narrow whitish posterior margins.

Head conspicuously narrowed behind eyes. Antenna 1.3× as long as maximum head width, flagellomeres 8,9 about as long as width. Eyes converging below. Postocellar area: width : length = 1.0 : 0.8; lateral furrows convex. Frontal area distinctly limited; anterior cross-ridge shallowly interrupted medially; lateral furrows convex. Interantennal area with shallow semicircular furrow.

Head smooth and shiny; pubescence whitish. Mesoscutum scattered micropunctate, shiny; pubescence similar to that on head. Abdomen scattered micropunctate, shiny. Penis valve: Fig. 140.

Length: 6.5-7.0 mm.

Female

Unknown.

Etymology

This species was named after Dr. med. Beate Koch, the daughter of the describing author.

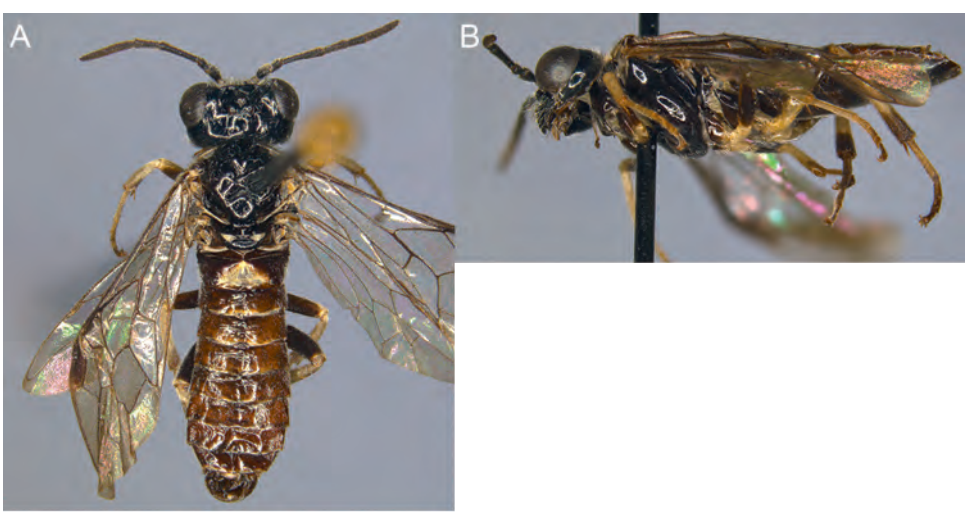

Fig. 139. A-B. *Xenapates beateae*, habitus, male. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Distribution

Namibia (Kunene Region) (Fig. 181).

Ecology and habitat

This species is only known from the type locality, being a comparatively small shallow moist dip in the terrain located in the Thornbush Savanah Biome.

The vegetation of this habitat (Fig. 141) is dominated by the small *Acacia*-like tree *Dichrostachys cinerea* (Linnaeus) Wight & Arnott (Fabaceae), and in their semi-shade the herbaceous plant *Achyranthes aspera* Linnaeus var. *sicula* Linnaeus (Amaranthaceae). All specimens were observed on leaves of the latter species, and therefore it may be the food plant. The area was visited on three occasions, but females were not collected. The flight season is February and March.

Remarks

Xenapates beateae belongs to the *X. brevicornis* species group (Koch 1995) and inhabits together with *X. damaraensis* the same habitat north of Sesfontein.

In its colouration *X. beateae* is similar to *X. damaraensis*. *Xenapates beateae* differs strikingly from the other *Xenapates* species of the study region by its nearly entirely black clypeus and labrum. Further morphological differences between the species are discussed under *X. damaraensis.*

The ratio of length of antenna to the maximum head width varied from 1.3x to 1.4x.

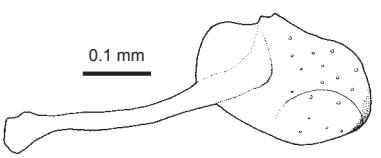

Fig. 140. *Xenapates beateae*. Penis valve (left, lateral aspect).

Xenapates damaraensis **Koch, 1995**

Xenapates damaraensis Koch, 1995: 373, 389. ♂♀. Type locality: Kaross, S.[outh] W.[est] A.[frica] [Namibia] (NNIC).

Female

Head black, gena with white spot; base of mandible white, blackish medially becoming reddish in apical half; labrum white with very narrow anterior margin black, lateral teeth and narrow anterior margin of clypeus white; distal flagellomeres

Fig. 141. The habitat of *Xenapates beateae* and *X. damaraensis* about 40 km north of Sesfontein in northwestern Namibia (Thornbush Savanna Biome). (Photo by F. Koch)

ventrally brightened. Thorax black with following whitish: dorso- and ventro-lateral angels of pronotum, postspiracular sclerite, margin of tegula and small dorsal angel of mesopleuron. Legs whitish with following blackish: more or less basal half of coxae, broad apex of posterior surface of fore and mid femur, apex of hind femur and hind tibia, distal tarsomeres darkened. Wings hyaline; stigma and costa blackish with narrow pale at base, subcosta and rest of venation blackish. Abdomen black; terga and sterna with very narrow whitish posterior margins.

Head parallel-sided behind eyes. Antenna 1.2× as long as maximum head width. Eyes converging below. Postocellar area: width : length = 1.0 : 1.2, lateral furrows slightly convex towards posterior margin of head. Frontal area distinctly limited; anterior cross-ridge deeply and broadly interrupted medially; lateral furrows convex. Interantennal area with deep triangular groove.

Vertex and gena smooth and shiny, frons and supraclypeal area scattered micropunctate, shiny, paraantennal field densely punctuate, subshiny; pubescence whitish. Thorax smooth and shiny; pubescence similar to that on head. Abdomen smooth and shiny. Sawsheath in dorsal view very narrow, in lateral view obtusely pointed apically. Lancet with about 21 serrulae (Fig. 142G).

Length: 7.0-7.5 mm.

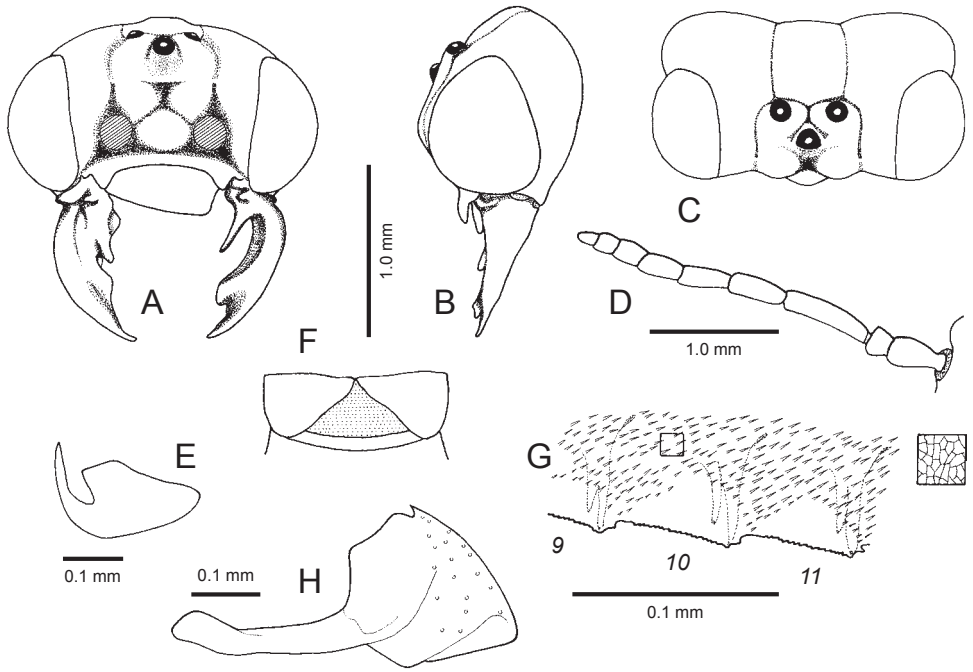

Fig. 142. A-H. *Xenapates damaraensis*. **A**. Head (frontal aspect). **B**. Head (lateral aspect). **C**. Head (dorsal aspect). **D**. Antenna. **E**. Tarsal claw. **F**. Tergum 1. **G**. Serrulae 9-11, square illustrating enlarged microsculpture. **H**. Penis valve (left, lateral aspect).

Male (Figs 143A, B)

Colouration similar to that of female. Terga 2-7 light brown in the middle so that abdomen appears to be pale longitudinally striped, sterna also light brown medially, sternum 9 black. Head slightly narrowed behind eyes. Antenna 1.3× as long as maximum head width. Other features as for female. Penis valve: Fig. 142H.

Length: 6.0-7.0 mm.

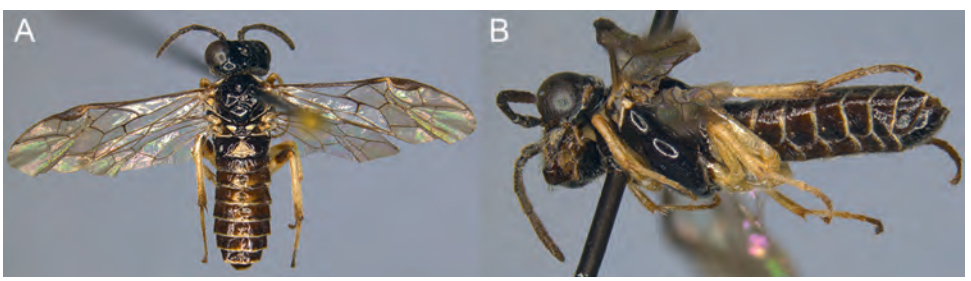

Fig. 143. A-B. *Xenapates damaraensis*, habitus, male. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Etymology

This species is named after Damaraland in Namibia, the landscape of the type locality.

Distribution

Namibia (Region: Erongo, Kunene, Omusati) (Fig. 182).

Ecology and habitat

Xenapates damaraensis was found together with *X. beateae* in the described habitat (Fig. 141) under the latter species.

Xenapates damaraensis seems to prefer moist habitats, which are located mostly in the Thornbush Savanna Biome (Fig. 144). Furthermore this species was collected in the dense and species rich vegetation at the banks of the Kunene River in the Thornbush Savanna Biome. Further material was collected from the Brandberg Massif (Figs 16, 80) during the rainy season, and from the immediate surroundings of a dry-river south of Windhoek. The flight season is February and March.

Fig. 144. The habitat of *Xenapates damaraensis* in the vicinity of the Ongongo Falls in the Kaokoveld (Thornbush Savanna Biome) in north-western Namibia. an especially large Malaise trap with two collecting heads, designed by Gressitt & Gressitt (1962), is depicted on the right of the photograph. (Photo by F. Koch)

Remarks

Xenapates damaraensis is the most abundant species of *Xenapates* in Namibia, and belongs to the *X. brevicornis* species group (Koch 1995). At the first glance, it differs from *X. beateae* mainly by the possession of the white genal spot and the more whitish legs. Both species are clearly distinguished in the shape of the penis valve (Figs 140, 142H).

Sometimes the hind tibia of males is only dark spotted apically. In some females the terga and sterna may be medially dirty white.

Xenapates eardleyi Koch, 1995

Xenapates eardleyi Koch, 1995: 374, 392. ♂♀. Type locality: D'Nyala Nat.[ure] Res.[erve], Ellisras District, Tvl. [Transvaal] (Limpopo Province), South Africa (PPRI).

Female

Head black with following whitish, a small spot on the dorso-interior angle of the eye, ventral half of gena and a narrow posterior margin rising up to top of the eye; base of mandible whitish, blackish medially becoming reddish in apical half, labrum and clypeus whitish; distal flagellomeres ventrally brightened. Thorax black; with pronotum extensively white, postspiracular sclerite, tegula, a large spot on mesopleron and narrow posterior margin of mesoscutellar appendage white. Legs whitish; fore and mid coxa at the extreme base black, hind coxa dorsally and ventrally extended blackish, posterior surface of fore and mid femur blackish in apical half, hind femur with entirely broad black apex, fore and mid tibia with blackish stripe on posterior surface, hind tibia only in apical half blackish striped, hind tarsus light brown. Wings hyaline with very slightly infuscate apical half; stigma and costa dark brown with pale at base, subcosta and rest of venation dark brown. Abdomen black; terga with very narrow whitish posterior margins, sterna more whitish.

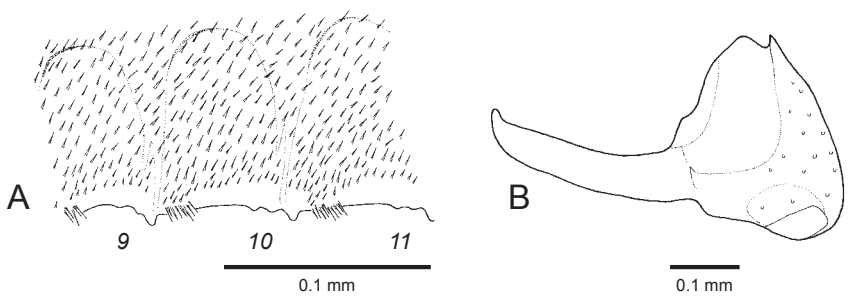

Fig. 145. A-B. *Xenapates eardleyi*. **A**. Serrulae 9-11.
B. Penis valve (left, lateral apect).

Head parallel-sided behind eyes. Antenna 1.3× as long as maximum head width. Eyes converging below. Postocellar area: width : length = 1.0 : 1.0L; lateral furrows convex. Frontal area distinctly limited; anterior cross-ridge deeply interrupted medially; lateral furrows convex. Interantennal area with a deep triangular groove.

Vertex, frons and supraclypeal area smooth and shiny, gena scattered micropunctate, shiny, paraantennal field shallowly punctate, shiny; pubescence whitish. Mesoscutum smooth and shiny; pubescence similar to that on head. Abdomen smooth and shiny. Sawsheath in dorsal view very narrow, in lateral view acutely rounded. Lancet with about 22 serrulae (Fig. 145A).

Length: 8.5 mm.

Male (Figs 146A, B)

Colouration similar to that of female. Sterna extensively whitish, except for black sternum 9. Head slightly narrowed behind eyes. Antenna 1.4× as long as maximum head width. Other features as for female. Penis valve: Fig. 145B.

Length: 7.0-7.8 mm.

Etymology

This species was named after Dr. Connal Desmond Eardley, specialist scientist of Agricultural Research Council, Plant Protection Research Institute, Pretoria, South Africa.

Distribution

Namibia (Otjozondjupa Region) (Fig. 182), South Africa (Province: KwaZulu-Natal, Limpopo), Zambia, Zimbabwe.

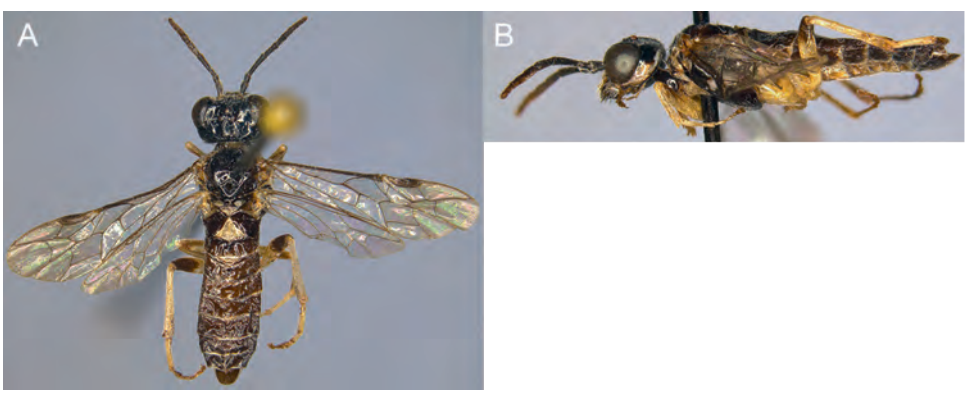

Fig. 146. A-B. *Xenapates eardleyi*, habitus, male. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Ecology and habitat

The Namibian locality of *Xenapates eardleyi* is Aha Hills in the Northern Kalahari, and belongs to the Kalahari Basin as part of the Woodland Savanna Biome. The vegetation is quite dense and floristically species rich. The flight season is December and February-March.

Remarks

Externally, *Xenapates eardleyi* is distinguished from all other *Xenapates* species occurring in the study region by its white colouration pattern on the gena.

Xenapates eardleyi is clearly separated from the *X. brevicornis* species group (Koch 1995) by the shape of the serrulae, which are apically rounded (Fig. 145A). This shape is unique in all known species of this genus, and therefore it is the only species of the hypothetical *X. eardleyi* species group (Koch 1995).

In males the sterna 2-8 may be entirely whitish, and sometimes the extreme apex of hind tibia is blackish.

Xenapates similis Benson, 1939

Xenapates similis Benson, 1939: 121. ♀. Type locality: Sawmills, S.[outh] Rhodesia [Zimbabwe] (BMNH).

Female (Figs 147A, B)

Head and antenna black; base of mandible white, dark reddish medially becoming reddish in apical half; labrum, lateral teeth and narrow anterior margin of clypeus white. Thorax black; with pronotum extensively whitish, postspiracular sclerite, tegula and a large spot on mesopleron white. Legs light yellow; coxae very narrowly blackish marginate, posterior surface of fore and mid femur blackened apically, hind femur with entirely black apex, fore and mid tibia blackish striped at posterior surface, hind tibia blackish ringed apically, distal tarsomeres of fore and mid legs blackish, hind tarsus black. Wings subhyaline; stigma, costa, subcosta and rest of venation blackish. Abdomen black; terga and sterna with narrow whitish posterior margins, medially broadened.

Head parallel behind eyes. Antenna 1.3× as long as maximum head width. Eyes converging below. Postocellar area: width : length = 1.0 : 0.9, lateral furrows slightly convex towards posterior margin of head. Frontal area distinctly bordered; anterior cross-ridge shallowly interrupted medially; lateral furrows convex. Interantennal area with two lateral grooves.

Vertex, frons and supraclypeal area smooth and shiny, gena scattered micropunctate, shiny, paraantennal field densely, shallowly punctuate, subshiny; pubescence whitish. Mesoscutum smooth and shiny; pubescence similar to that on head. Terga 1,2 smooth and shiny, following terga slightly microsulptured, shiny.

Sawsheath in dorsal view very narrow, in lateral view pointed apically. Lancet with about 23 serrulae (Fig. 148A).

Length. 6.5-8.0 mm.

Male (Figs 147C, D)

Colouration similar to that of female. Mesoscutellum, mesoscutellar appendage and small dorsal angle of mesopleuron white. Terga 2-5(6) pale in the middle, so that the abdomen appears to have a pale longitudinal stripe; sterna nearly entirely whitish; sternum 9 black with whitish posterior margin. Fore and mid tarsus nearly entirely pale yellow. Head slightly narrowed behind eyes. Antenna 1.4× as long as head maximum width. Other features as for female. Penis valve: Fig. 148B.

Length. 6.0-7.0 mm.

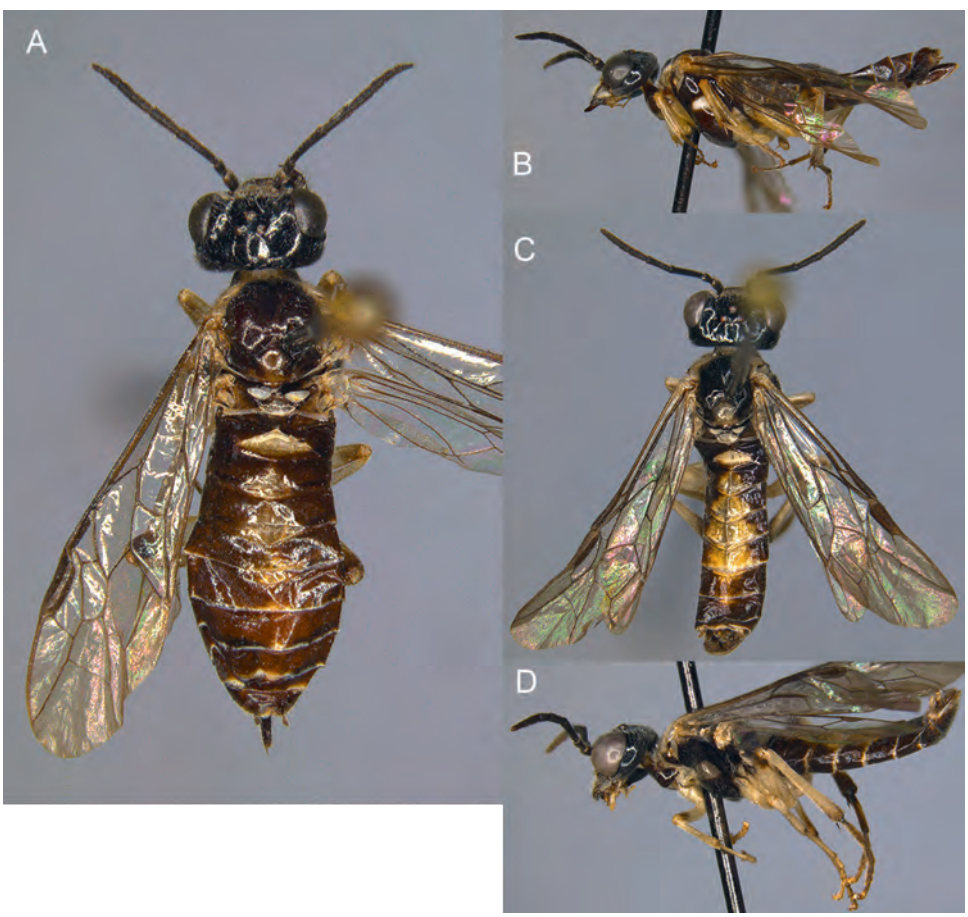

Fig. 147. A-D. *Xenapates similis*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect, male. **C**. Dorsal aspect. **D**. Lateral aspect. (Photos by A.D. Liston)

Etymology

The species name means "*similar*", alluding to a likeness with *Xenapates abyssinica* Benson.

Distribution

Botswana, Cameroon, Mozambique, Namibia (Region: Otjozondjupa, Okavango) (Fig. 181), South Africa (Province: Limpopo, Mpumalanga), Zambia, Zimbabwe detailed distribution is presented by Koch (1995).

Ecology and habitat

In Namibia, *Xenapates similis* was recorded from riverine habitats at the Okavango River [Kavango], in the Caprivi Strip, as well as from moist habitats with dense vegetation of the Northern Kalahari and from the foot of the Waterberg (Fig. 24). All localities belong to the Woodland Savanna Biome.

In the area of the Waterberg, *Xenapates similis* is highly attracted to yellow pan traps. The flight season is from December to February.

Remarks

Based on the shape of the penis valve (Koch 1995), *Xenapates similis* is the only known species of the hypothetical *X. similis* species group.

The pale longitudinal stripe on the dorsal surface of the abdomen of *Xenapates similis* is similar to *X. damaraensis* especially in males. However, the latter species is distinguished by the whitish genal spot and by the entirely black mesopleuron.

Sometimes in females the sterna are paler, similar to males, and the mesoscutellum and mesoscutellar appendage may be more or less whitish.

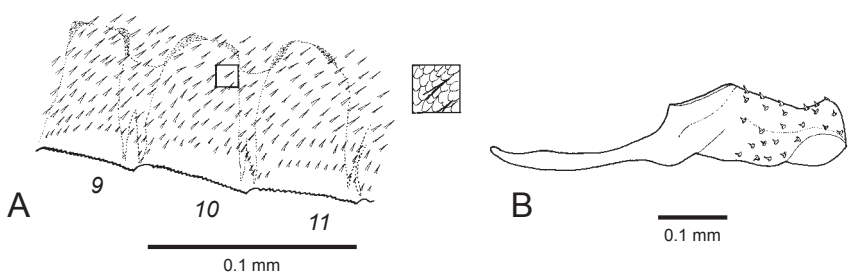

Fig. 148. A-B. *Xenapates similis*. **A**. Serrulae 9-11, square illustrating enlarged microsculpture. **B**. Penis valve (left, lateral apect).

Subfamily Blennocampinae

Genus *Distega* Konow, 1904

Distega Konow, 1904b: 244. Type species: *Distega sjoestedti* Konow, 1904b, by monotypy. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Blennocampinae/Distega/index.htm

Paradistega Forsius, 1934: 394, 396. Type species: *Distega bevisi* Forsius, 1930, by original designation.

Codistega Pasteels, 1949: 19, 23. Type species: *Paradistega congonensis* Forsius, 1934 [=*Distega congonensis* (Forsius, 1934)], by original designation.

Eudistega Pasteels, 1949: 19, 24. Type species: *Eudistega formosus* Pasteels, 1949 [=*Distega formosa* (Pasteels, 1949)], by original designation.

Pachydistega Pasteels, 1949: 19, 20. Type species: *Distega mocsaryi* Enslin, 1913b, by original designation.

Distegella Pasteels, 1951: 197, 198. Type species: *Distegella velutina* Pasteels, 1951 [=*Distega velutina* (Pasteels, 1951], by original designation.

Description

Antenna 9-segmented (Fig. 150C). Head without especially conspicuous structures; clypeus separated by an epistomal suture from the supraclypeal area, anterior margin of clypeus truncate or very slightly emarginate (Fig. 150A); malar space absent (Fig. 150B). A continuous suture divides the upper and lower halves of the mesepisternum (Fig. 149A). Tarsal claws with a basal lobe and with a smaller inner tooth (Fig. 150D). Fore wing with radial cell (R1) divided by radial crossvein (2r), anal cell present only distally (2A), petiolate (1A), 2nd and 3rd anal vein (2A+3A) almost completely obliterated, only a stub present (Fig. 41G) or incompletely outlined (Fig. 41H); hind wing with closed radial cell (R1), with anal cell (A) and two middle cells (Rs and M) present (Fig. 41G). Tergum 1 with a rather wide and deep median split (Fig. 150E).

The colouration of the species is all black, or black with yellowish markings or yellowish with black markings.

Ranging from 6.0 to 10.0 mm in length.

Remarks

The genus *Distega* is endemic to the Afrotropical Region, and with 25 valid species (Taeger *et al*. 2010) it is the largest genus of the Afrotropical Blennocampinae. This genus was revised by Pasteels (1955a), but it is urgently in need of a taxonomic revision.

For the south-west African study region only two species are reported, both of which have been collected in the Woodland Savanna Biome.

Sporadically, it is possible to find specimens of different species with variable reduction of the fore wing veins 2A+3A (Fig. 41H). In fact, apart from a basal stub of 2A+3A straight at apex, and in very few cases a very small vestige of these veins at the base of the anal crossvein (a) (Fig. 41G, arrowed), particularly in *D. bevisi* (Fig. 41H), these veins are almost completely obliterated (Fig. 41G) in all other species.

Host plants

The larvae of the western African *Distega nigeriae* Forsius, 1927b (Fig. 37C) were observed feeding on *Commelina benghalensis*, *C. communis* (Commelinaceae) and *Digitaria horizontalis* (Poaceae) in Benin including recording of the complete metamorphosis (G. Goergen, unpublished) (**Chapter 7: Host plants**).

Distega bevisi Forsius, 1930

Distega bevisi Forsius, 1930a: 71. ♀. Type locality: Widenham, Natal [KwaZulu-Natal], South Africa (BMNH).

Female (Figs 149A-C)

Head and antenna black; apical half of mandible reddish brown. Thorax yellow with following black: propleuron, a patch on ventro-lateral angel of pronotum, one small medial patch on median lobe of mesoscutum adjacent to pronotum, ventral half of mesopleuron downwards from transverse suture, mesosternum, metapleuron. The mesoscutellar appendage and metanotum blackish. Legs black with following yellow: dorsal surface of fore and mid femur, fore and mid tibia, narrow apical margin of hind coxa, fore tarsus, dorsal surface of hind trochanter, narrow base and apex of hind femur, mid basitarsomere, except for its apex, basal half of hind tibia. Wings slightly bicoloured with infuscate apical half and basal half hyaline with narrow infuscate at base; intercostal area dark fuscous, stigma, costa, subcosta and rest of venation blackish. Abdomen yellow; tergum 1 with two large black medial patches, terga 2-7 broadly black medially, sawsheath black with yellow at base.

Head parallel-sided behind eyes. Antenna 1.3× as long as maximum head width. Eyes converging below. Anterior margin of clypeus subtruncate, malar space absent. Postocellar area: width : length = 1.0 : 0.7; lateral furrows slightly convex towards posterior margin of head. Frontal area distinctly limited, anterior cross-ridge scarcely interrupted medially, lateral furrows convex. Interantennal area with two small moderately deep lateral grooves.

Vertex and supraclypeal area smooth and shiny; gena and frons scattered micropunctate, paraantennal area irregularly microsculptured, shiny, clypeus coarsely scattered punctate, shiny; pubescence whitish. Mesoscutum nearly impunctate, shiny; pubescence similar to that on head. Abdomen smooth and shiny. Sawsheath in dorsal view narrow, in lateral view obtusely pointed apically (Fig. 150F). Lancet with about 21 serrulae (Fig. 150G).

Length: 10.0-11.0 mm.

Male (Figs 149D, E)

Colouration similar to that of female, except for: mesonotum, metanotum and mesopleuron entirely black. Terga 1-8 broadly black, only narrowly laterally yellow, sternum 9 black.

Head conspicuously narrowed behind eyes. Antenna 1.5× as long as maximum head width. Malar space absent. Vertex, paraantennal and supraclypeal area scattered micropunctate, shiny, clypeus scattered punctate, shiny, frontal area irregularly microsculptured, shiny; pubescence dark brown. Median lobe of mesoscutum moderately densely punctate, shiny, lateral lobe scattered micropunctate, shiny; pubescence light brown. Genitalia: Figs 150H, I.

Etymology

This species was named after Lionel Bevis (1897-1985), who was an entomologist at the Durban Science Museum of KwaZulu-Natal.

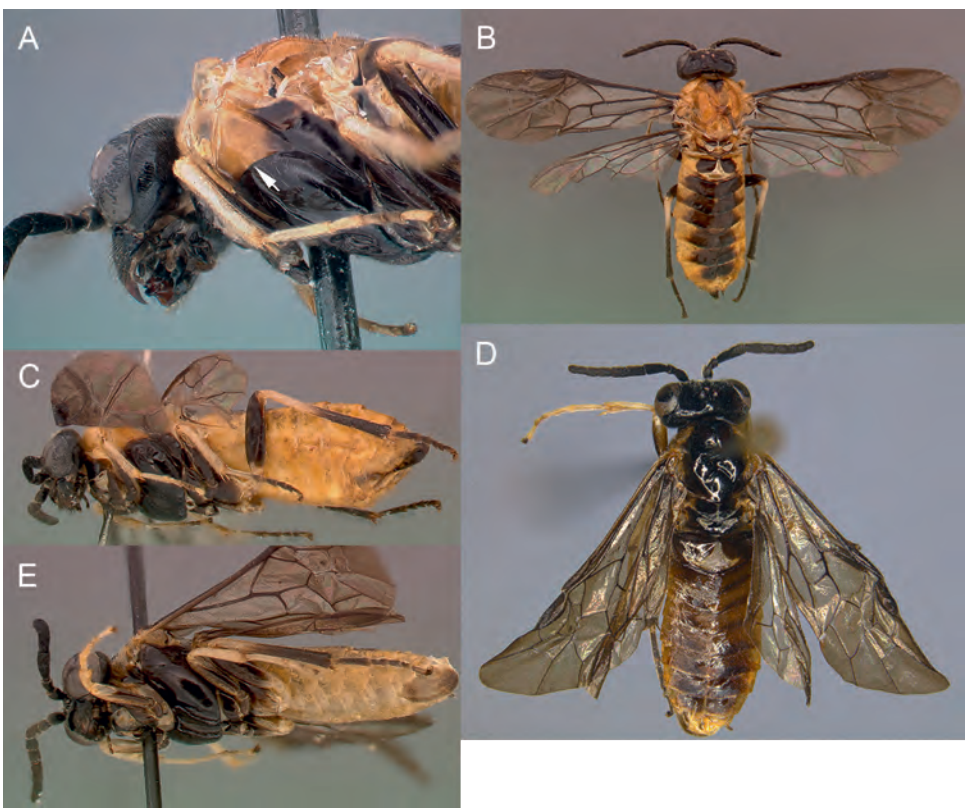

Fig. 149. A-C. *Distega bevisi*, female. **A**. mesepisternum with transverse suture (arrowed), habitus. **B**. Dorsal aspect. **C**. Lateral aspect, male. **D**. Dorsal aspect. **E**. Lateral aspect (Photos by A.D. Liston)

Distribution

Botswana, Mozambique, Namibia (Region: Okavango, Omusati, Otjozondjupa) (Fig. 183), South Africa (Province: Eastern Cape, KwaZulu-Natal, Limpopo, North West).

Ecology and habitat

In the Caprivi Strip of Namibia *D. bevisi* was recorded from riverine habitats at the Okavango River [Kavango] (Fig. 23), as well as from moist habitats of Northern Kalahari. All localities belong to the Woodland Savanna Biome. Further records exist from the Etosha Pan National Park (Thornbush Savanna Biome) at a temporary watering place. The flight season is from December to January.

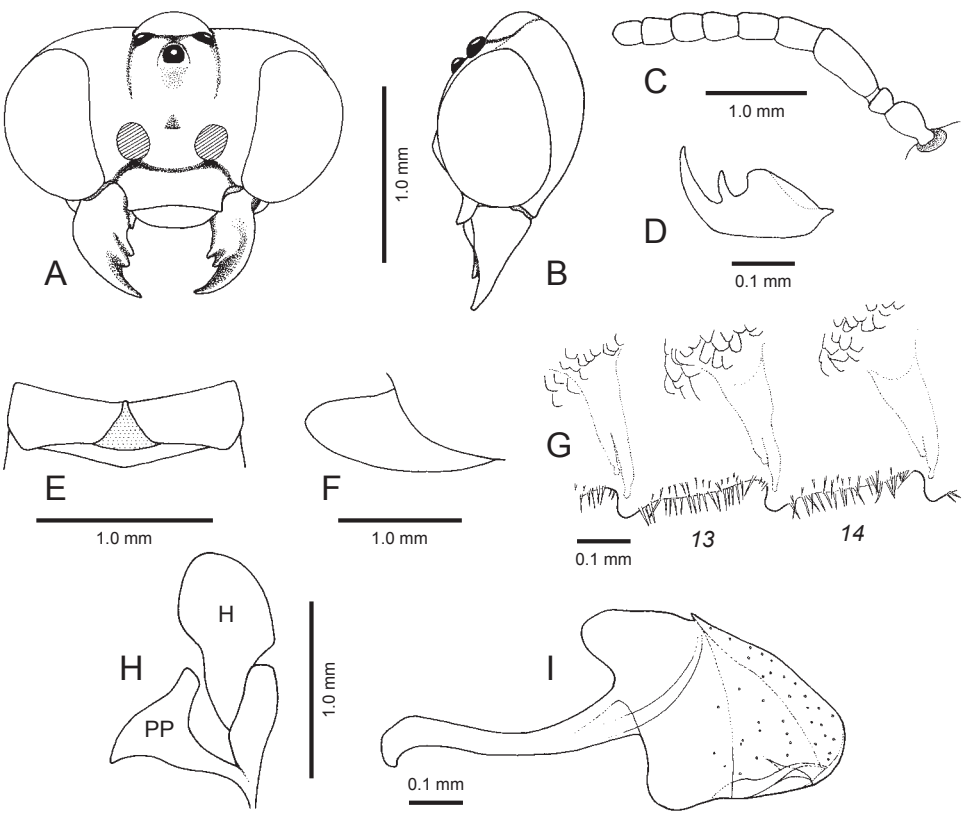

Fig. 150. A-I. *Distega bevisi*. **A**. Head (frontal aspect). **B**. Head (lateral aspect). **C**. Antenna. **D**. Tarsal claw. **E**. Tergum 1. **F**. Sawsheath (lateral aspect). **G**. Serrulae 13-14. **H**. Parapenis and harpe (right, ventral aspect). **I**. Penis valve (left, lateral aspect).

Remarks

In South Africa *D. bevisi*, including the holotype, has been reported from different areas near the coast of the KwaZulu-Natal Province, and from the mountain region of the Limpopo Province. Zoogeographically, this species belongs to the East African Coastal District, which is defined by Winterbottom (1978). This is a narrow belt between the Indian Ocean and the escarpment (Drakensberg mountain system) with some finger-like extensions further into the inland. Therefore the vegetation consists of lowland and mangrove forests at the coast and savanna and mountain forests on the plateau of the escarpment. *Distega bevisi* is the second known species beside *Arge braunsi* Konow, 1904a which has this pattern of distribution (Koch & Liston 2012b).

It was not possible to find any constant morphological differences between the specimens from South Africa and those from the Caprivi Strip as well as Botswana. Some females from the coast of the Indian Ocean Coastal Belt Biome differ in having a black mesonotum, metanotum and mesopleuron. On the other hand, in Namibian species the mesonotum and metanotum may be entirely yellow. Nevertheless, the possibility cannot be excluded that two different species are involved.

Distega montium Konow, 1907

Distega montium Konow, 1907a: 2. ♂♀. Type locality: Kilimandjaro [Kilimanjaro], Africa or. [Tanzania] (NHRS).

Distega braunsi Enslin, 1911: 667, **syn. n.** ♀**.** Type locality: Lichtenberg [Lichtenburg], Transvaal (North West Province), South Africa (TMSA).

Distega brunniventris Enslin, 1913b: 314, **syn. n.** ♀**.** Type locality: Atusha [Arusha]-Ju, Ostafrika [Tanzania] (HNHM).

Female (Figs 151A, B)

Head and antenna black; apical half of mandible dark reddish. Thorax black with

Fig. 151. A-B. *Distega montium*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

metanotum and metapleuron yellow. Legs yellow; fore coxa and fore trochanter, basal half of mid coxa, narrow apices of tibiae and tarsi blackish, only basal half of basitarsomeres yellowish. Wings infuscate throughout; intercostal area dark fuscous, stigma, costa, subcosta and rest of venation blackish. Abdomen yellow; sawsheath black with yellow at extreme base.

Head parallel-sided behind eyes. Antenna 1.5× as long as maximum head width. Eyes converging below. Anterior margin of clypeus subtruncate, malar space very narrowly developed. Postocellar area: width : length = 1.0 : 0.7; lateral furrows slightly convex. Frontal area distinctly limited; anterior cross-ridge conspicuously interrupted medially; lateral furrows convex. Interantennal area with two small deep lateral grooves.

Vertex and frons smooth and shiny; posterior half of gena, supraclypeal area and paraantennal area micropunctate, shiny, clypeus moderately coarsely, densely punctate, shiny; pubescence light brown. Mesoscutum nearly impunctate, shiny; pubescence whitish. Abdomen smooth and shiny. Sawsheath in dorsal view narrow, in lateral view narrowly rounded apically (Fig. 152A). Lancet with about 21 serrulae (Fig. 152B).

Length: 7.5-9.2 mm.

Male

Colouration similar to that of female. Flagellomeres 4-7 with brown ventral surface, thorax entirely black, tergum 1 black, posterior margin of tergum 6, dorsal surface of tergum 7,8 and sternum 9 blackish.

Head conspicuously narrowed behind eyes. Antenna 1.3× long as maximum head width. Malar space absent. Genitalia (Figs 152C, D).

Length: 8.0-9.0 mm.

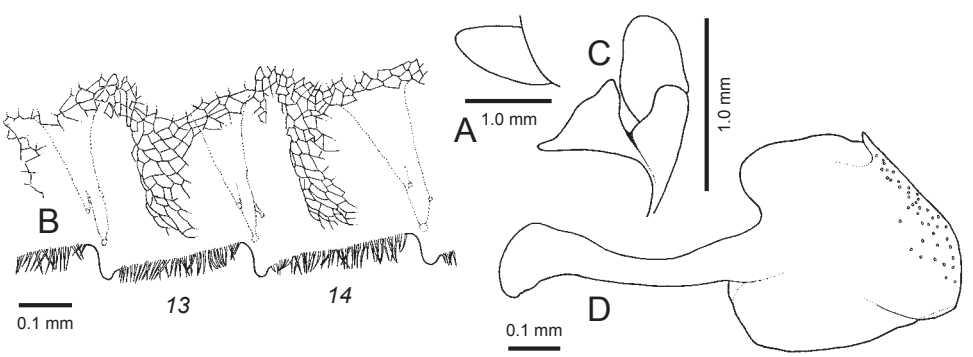

Fig. 152. A-D. *Distega montium*. **A**. Sawsheath (lateral aspect). **B**. Serrulae 13-14. **C**. Parapenis and harpe (right, ventral aspect). **D**. Penis valve (left, lateral aspect).

Etymology

The species name means “of the mountain”, referring to the type locality on Mt. Kilimanjaro.

Distribution

Burundi, Democratic Republic of the Congo, Ethiopia, Kenya, Mozambique, Namibia (Otjozondjupa Region) (Fig. 183), Rwanda, South Africa (North West Province), Tanzania, Uganda.

Ecology and habitat

Collected at the foot of the Waterberg Mountain (Namibia), located in the Thornbush Savanna Biome. The habitat is moist with dense vegetation (Fig. 24). The flight season is not well known, the Namibian specimen was collected in February.

Remarks

It was not possible to find any morphological differences between the specimens from southern Africa and those from East Africa. Nevertheless, it cannot be excluded that two different species are involved.

Sometimes the dorso-lateral angle of the pronotum and a narrow posterior margin of the mesoscutellum can be yellow. The colouration of the mid coxa varies from entirely yellow to black.

The holotypes of *Distega braunsi* and *D. brunniventris* have been examined, and it was impossible to find any differences to *D. montium*, which are relevant for distinguishing them as different species; thus, they are synonymised here with *D. montium*.

Genus *Durbadnus* Pasteels, 1954

Durbadnus Pasteels, 1954a: 503. Type species: *Monophadnus chubbi* Forsius, 1930a, by original designation. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Blennocampinae/Durbadnus/index.htm

Description

Antenna filiform, 9-segmented, longer than maximum head width, flagellomere 1 conspicuously longer than flagellomere 2 or flagellomere 3. Head without strongly developed structures; occipital carina absent; each mandible with strongly developed, double-shouldered, subapical tooth; clypeus subtruncate, very slightly enlarged medially; malar space absent (Koch & Liston 2012c: 657, fig. 27); supraantennal crest moderately developed; frontal area indistinctly limited. Epicnemium absent. Tarsal claws cleft apically, with inner tooth somewhat shorter, and large basal lobe (Koch & Liston, 2012c: 654, fig. 16). Fore wing with radial

crossvein (2r) present, media (M) slightly curved and parallel to crossvein (1m-cu) (Fig. 41E), cells 1Rs and 2Rs subequal in length (Fig. 41E) or 2Rs is as long as 1R1 and 1Rs united, anal cell present only distally (2A), petiolate (1A), stub of 2nd and 3rd anal veins (2A+3A) nearly straight or furcate at apex (Koch & Liston, 2012c); hind wing with closed radial cell (R1), without closed middle cells (Rs and M), anal cell (A) present and about equal to width of anal cell, short petiolate (1A) (Fig. 41E). Tergum 1 with more or less wide and deep median split (Fig. 153A).

Head and abdomen black, thorax black with orange yellow markings.

Ranging from 6.0-8.0 mm in length.

Remarks

Pasteels (1949) recognized that *Monophadnus chubbi* Forsius, 1930a is atypical for *Monophadnus* Hartig, 1837, because as described by Forsius (1930a) the tarsal claws are cleft apically and lobed basally, whilst *Monophadnus* has simple claws, without basal lobe and subapical tooth. Pasteels (1954a) described *Durbadnus*, after he had seen a male of *D. chubbi* collected by Marley in 1945. However, he perpetuated a mistake made by Forsius (1930a): “Hind wings with one closed middle cell”. Actually, in *Durbadnus* the hind wing is without a closed middle cell, *i.e.* cells RS and M are missing.

Three valid species of *Durbadnus* (*D. taegeri* Koch & Liston, 2012c, *D. chubbi* (Forsius, 1930a) and *D. obscuripes* Forsius, 1931) have so far only been found in South Africa (Koch & Liston 2012c)

Host plants

Nothing is known about their host plants.

Durbadnus taegeri Koch & Liston, 2012

Durbadnus taegeri Koch & Liston, 2012c: 655 ♂. Type locality: Hexrivier, Citrusdal, Cape Province (Western Cape Province), South Africa (USNM).

Female (Figs 153A, B)

Head and antenna black; apical half of mandible reddish brown. Thorax black; pronotum, postspiracular sclerite, lateral half of lateral lobe of mesoscutum, medial lobe of mesoscutum at extreme angle and tegula orange yellow. Legs black; anterior surface of apical half and apex of posterior surface of fore femur yellow, fore tibia and fore basitarsomere at base dirty whitish. Wings uniformly slightly infuscate; stigma, costa, subcosta and rest of venation blackish. Abdomen black.

Head very slightly narrowed behind eyes. Antenna 1.4× as long as maximum head width; flagellomere 1 as long as flagellomeres 2,3 combined. Eyes converging downwards. Postocellar area: width : length = 1.0 : 0.7; lateral furrows slightly

convex. Supraclypeal furrow deep. Supraantennal grooves large and deep, with conspicuous furrow at lateral margin of torulus. Interantennal area with rounded groove and small longitudinal furrow medially, ending at front margin of frontal area. In fore wing cells 1Rs and 2Rs subequal in length; stub of 2A+3A furcate (Fig. 41E). Median split of tergum 1 wide and deep.

Head sparsely micropunctate, shiny; pubescence on head brown. Mesoscutum more densely punctate, shiny; pubescence yellow. Terga 1,2 smooth and shiny, following terga transversely microridged and micropunctate, shiny. Sawsheath in dorsal view narrowed towards apex, in lateral view narrowly rounded at apex (Fig. 154A). Lancet with about 23 serrulae (Fig. 154B, C).

Length: 6.7 mm.

Male

Unknown.

Etymology

The species was named after our colleague and specialist on Symphyta Dr. Andreas Taeger, curator of Hymenoptera and Lepidoptera at the Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany.

Distribution

South Africa (Western Cape Province) (Fig. 183).

Ecology and habitat

The riverine habitat is characterised by different shrub species and quite dense herbaceous plant vegetation and is located in the Mountain Fynbos of the winter rainfall zone (Fig. 8).

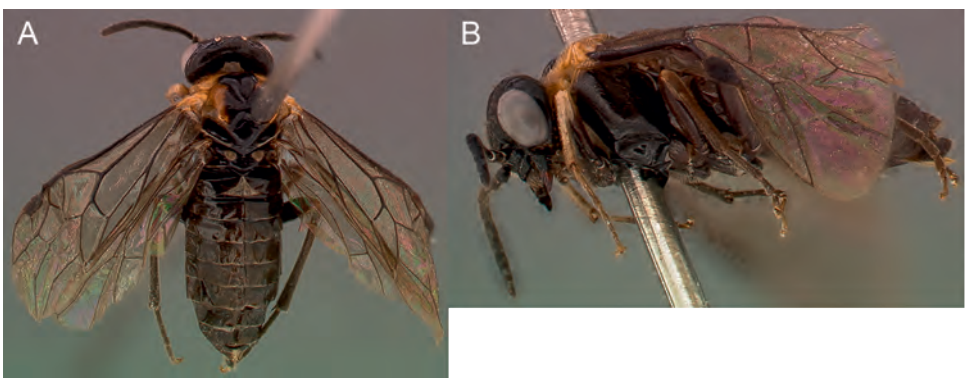

Fig. 153. A-B. *Durbadnus taegeri*, habitus, female (holotype). **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

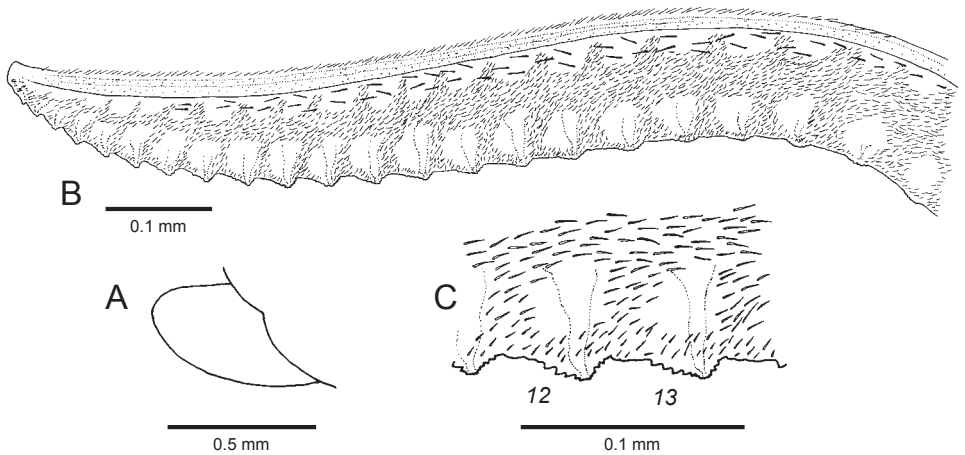

Fig. 154. A-C. *Durbadnus taegeri*. **A**. Sawsheath (lateral aspect). **B**. Lancet. **C**. Serrulae 12-13.

The flight season is more or less unknown. Only one specimen has been collected in October.

Remarks

Durbadnus taegeri was the first recorded member of the Tenthredinidae in the winter rainfall zone of southern Africa (Koch & Liston 2012c).

Genus *Trisodontophyes* Enslin, 1911

Trisodontophyes Enslin, 1911: 666. Type species: *Trisodontophyes nigroflava* Enslin, 1911, by original designation. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Blennocampinae/Trisodontophyes/index.htm

Description

Antenna 9-segmented (Fig. 155D). Clypeus separated by an epistomal suture from the supraclypeal area, anterior margin of clypeus more or less circularly emarginate; malar space conspicuously developed (Fig. 155A); frontal area conspicuously domed, supraantennal bulges very strongly developed (Figs 155B, C). Tarsal claws tridentate with a basal lobe and two subapical teeth (Fig. 155E). Fore wing with radial cell (R1) divided by radial crossvein (2r), anal cell present only distally (2A), petiolate (1A), 2nd and 3rd anal vein (2A+3A) not outlined, only a basal stub present straight at apex (Fig. 41F); hind wing with closed radial cell, with anal cell (A) and one middle cell (M) present (Fig. 41F). Median split of tergum 1 moderately wide and deep (Fig. 155).

The head is mostly black, the thorax black or black with yellowish markings, and the abdomen yellowish.

Ranging from 6.0-11.5 mm in length.

Remarks

Trisodontophyes are readily separated from other African Blennocampinae by their tridentate claws (Fig. 155E).

Together with *Distega*, the endemic genus *Trisodontophyes* is one of the most species rich genera of Afrotropical Blennocampinae. Taeger *et al.* (2010) list 21 extant species as valid. The genus was revised by Koch (2001).

For the south-west African study region only one species is reported, which has been collected in the Woodland Savanna Biome.

Host plants

Nothing is known about their host plants.

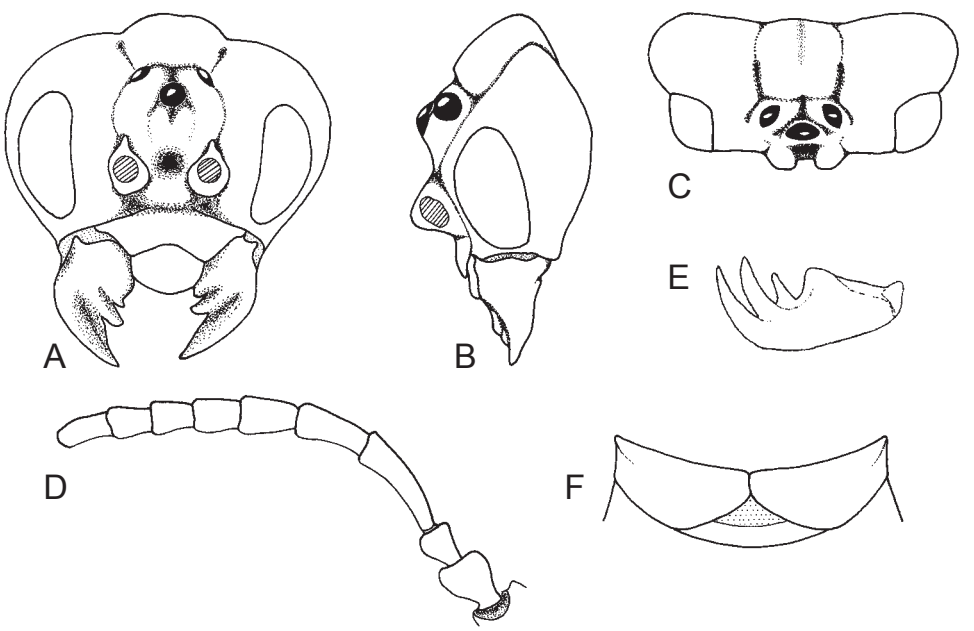

Fig. 155. A-F. *Trisodontophyes* sp. **A**. Head (frontal aspect). **B**. Head (lateral aspect). **C**. Head (dorsal aspect). **D**. Antenna. **E**. Tarsal claw. **F**. Tergum 1.

Trisodontophyes diversa Koch, 2001

Trisodontophyes diversa Koch, 2001: 266, 273. ♂♀. Type locality: Ufipa, Tanganyika [Tanzania] (BMNH).

Female

Head and antenna black; mandible light brown in basal half becoming dark reddish apically. Thorax black with following yellow: propleuron (narrowly black at dorsal angle), pronotum, mesoscutellum, mesoscutellar appendage, metanotum, mesopleuron except for narrow ventral margin, katepimeron and metapleuron. Legs yellow: tibiae blackish ringed apically, tarsi blackish with basitarsomeres yellow on basal half. Wings slightly bicoloured with infuscate apical half and flavescent-hyaline basal half, intercostal area dark fuscous, stigma, costa, subcosta dark brown, rest of venation yellow at base and dark brown in apical half. Abdomen yellow; sawsheath black margined apically.

Head slightly enlarged behind eyes. Antenna 1.3× as long as maximum head width. Eyes slightly converging below. Anterior margin of clypeus shallowly emarginate. Postocellar area: width : length = 1.0 : 0.6; lateral furrows diverging towards posterior margin of head (Fig. 156A), without median furrow. Frontal area distinctly limited laterally; anterior cross-ridge scarcely developed. Interantennal furrow shallow, with two small lateral grooves.

Vertex scattered punctate with some coarser punctures between, shiny; gena more densely punctate, subshiny; frons and clypeus rugosely sculptured, dull; pubescence light brown. Mesoscutum moderately densely punctate, shiny; pubescence similar to that on head. Sawsheath in dorsal view narrow, in lateral view moderately pointed apically. Lancet with about 18 serrulae (Figs 156B-D).

Length: 9.0-10.5 mm.

Male (Figs 157A, B)

Colouration similar to that of female. Antenna 1.4× as long as maximum head width. Postocellar area: width : length = 1.0 : 0.7, median furrow slightly developed. Genitalia: Figs 156E, F.

Length: 7.5-8.0 mm.

Etymology

Derived from Latin *diversus*, various, with reference to the intraspecific variability of this species.

Distribution

Malawi, Namibia (Region: Okavango, Otjozondjupa) (Fig. 183) Tanzania.

Ecology and habitat

The Namibian collection site “Omaramba-Omatako” is a dry-river located in the Woodland Savanna Biome. Furthermore, this species is recorded from the

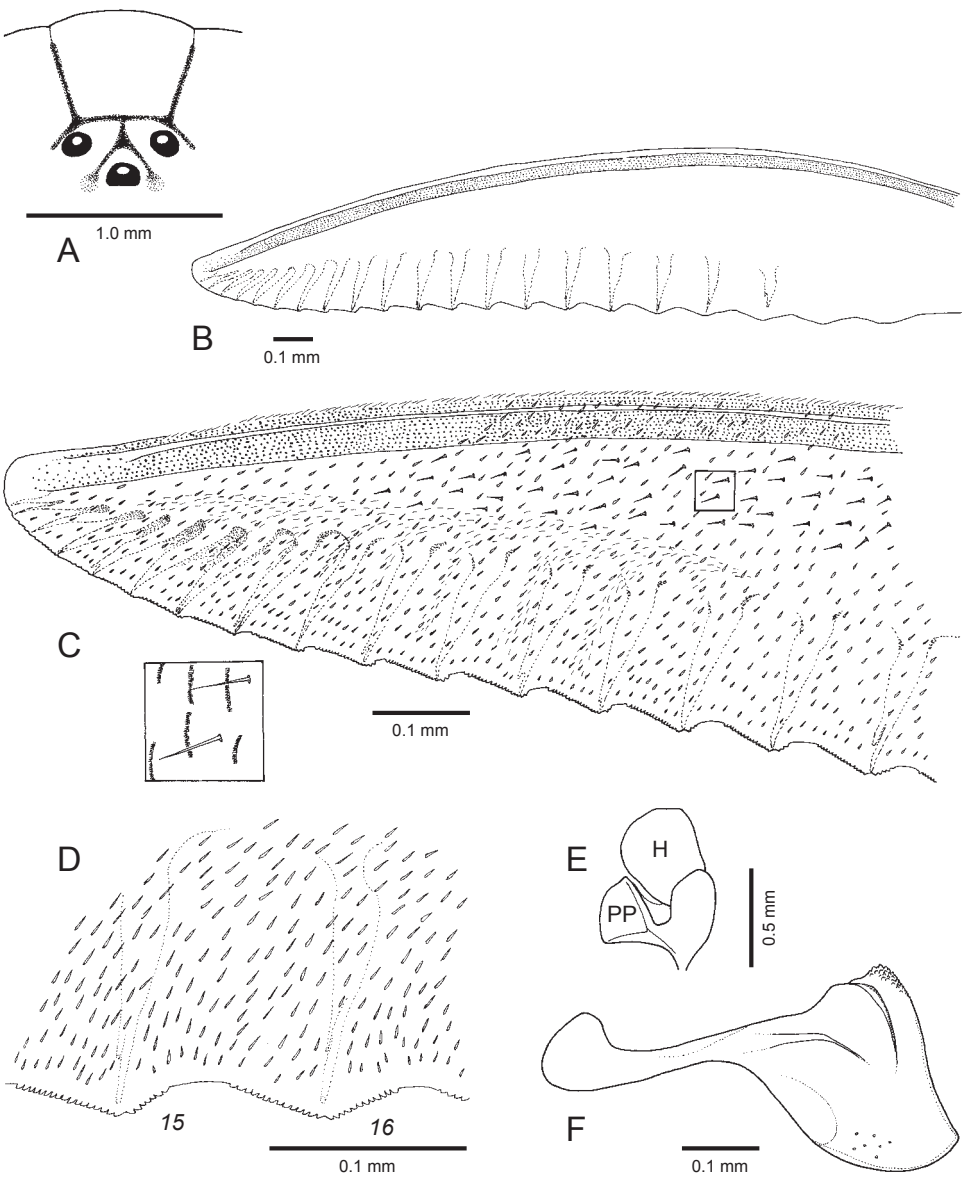

Fig. 156. A-F. *Trisodontophyes diversa*: **A**. Postocellar area (dorsal aspect). **B**. Lancet. **C**. Lancet (apical portion), square illustrating enlarged microsculpture. **D**. Serrulae 15-16. **E**. Parapenis and harpe (right, ventral aspect). **F**. Penis valve (left, lateral aspect).

Fig. 157. A-B. *Trisodontophyes diversa*, habitus, male. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Okavango River and from Grootfontein, localities also belonging to this biome. It seems that *T. diversa* prefers moist habitats with dense vegetation.

The flight season is not well known, the specimens were collected in February and December.

Remarks

The first record of *T. diversa* is from 1887, the second from 1918. Numerous entomological expeditions to these localities over the past 20 years, with the objective of obtaining new material, were unsuccessful.

Variability of colouration in this species is visible in the reduction of the largely black mesosternum to a small median patch. On the other hand, the mesoscutellum and the mesoscutellar appendage may be also black. The median furrow of the postocellar area is also developed to different degrees.

Subfamily Selandriinae

http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Selandriinae/index.htm

Genus *Dulophanes* Konow, 1907

Dulophanes Konow, 1907d: 132**.** Type species: *Dulophanes morio* Konow, 1907d, by monotypy. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Selandriinae/Dulophanes/index.htm

Dulophanella Forsius, 1934: 405. Type species: *Dulophanella gracilis* Forsius, 1934 [= *Dulophanes gracilis* (Forsius, 1934), by original designation.

Phanodules Pasteels, 1949: 80, 88. Type species: *Dulophanes antennatus* Enslin, 1913a, by original designation.

Description

Antenna with 9-11 segments. Head without especially conspicuous structures; clypeus separated by an epistomal suture from the supraclypeal area, anterior margin of clypeus truncated or subtruncated. Anterior portion of mesepisternum with epicnemium, separated by a more or less conspicuous epicnemial groove. Tarsal claws simple (Fig. 159A) or with subapical tooth and basal lobe. Fore wing with radial cell (R1) divided by radial crossvein (2r), the origins of veins M and Rs+M with distinct distance about as long as crossvein Rs (Fig.), anal cell (A) without cross vein a (1A and 2A are fused), contracted medially (Fig. 41B); hind wing with closed radial cell (R1), with anal cell (A) and two middle cells (Rs and M) present (Fig. 41B). Tergum 1 with a rather narrow, but deep median split.

The colouration of the species is predominantly black.

Ranging from 4.0 to 6.5 mm in length.

Remarks

According to Taeger *at al*. (2010) 21 species of *Dulophanes* are known as endemic to the Afrotropical Region. However, most of them belong to the central African fauna. For the study region only one species is reported. The genus *Dulophanes* desperately needs a taxonomic revision. The revision produced by Pasteels (1949) is outdated and in some cases incorrect.

Most species other than *D. obscurus* are coloured more or less yellow, and except for *D. bensoni*, and *D. obscurus* have tarsal claws with an inner tooth and basal lobe (Pasteels 1949). In addition, in the hind wing of *D. bensoni* the cells Rs and M are absent (Forsius 1931, Malaise 1963).

Until now three valid species of *Dulophanes* are known for Lesotho, Namibia and South Africa.

Host plants

Nothing is known about their host plants.

Key to species

1 Tarsal claw simple (Fig. 159A) ……2
1* Tarsal claw with smaller inner tooth and enlarged basal lobe. Lesotho, South Africa ……***D. natalensis* Forsius, 1931**

2 Legs nearly entirely yellow; hind wing with cells Rs and M absent. South Africa ……***D. bensoni* Forsius, 1931**
2* Legs black with fore tibia light light brown; hind wing with cells Rs and M present. Lesotho, Namibia, South Africa ……***D. obscurus* Forsius, 1931**

Dulophanes obscurus Forsius, 1931

Dulophanes obscurus Forsius, 1931: 35. ♀. Locus typicus: Van Reenen, Drakensberg, Natal [KwaZulu-Natal Province], South Africa (BMNH).

Female (Figs 158A, B)

Head and antenna black; apical half of mandible light brown becoming dark reddish apically. Thorax black. Wings uniformly strongly infuscate throughout, intercostal area somewhat darker; costa, stigma, subcosta, and rest of venation blackish. Legs black; extreme apex of fore femur and fore tibia light brown. Abdomen black; sterna with narrow whitish posterior margins.

Head slightly narrowed behind eyes. Antenna 10-segmented, as long as maximum head width. Anterior margin of clypeus truncated. Frontal area laterally limited. Postocellar area about twice as broad as long, laterally inconspicuously limited. Malar space very narrow, about a half diameter of lateral ocellus. Interantennal furrow transverse, moderately deep. Tarsal claws simple, without subapical tooth and basal lobe (Fig. 159A).

Head very sparsely micropunctate, shiny; pubescence brownish. Thorax somewhat more micropunctate, shiny, pubescence similar to that on head. Sawsheath in lateral view pointed apically, conspicuously shorter than lancet. Lancet: Fig. 159B.

Length: 6.2-5.3 mm.

Male

Colouration and structure similar to that of female. Mid tibia brown. Malar space absent. Genitalia: Figs 159C, D.

Length: 4.8-5.5 mm.

Etymology

The Latin adjective *obscurus* means “dark”.

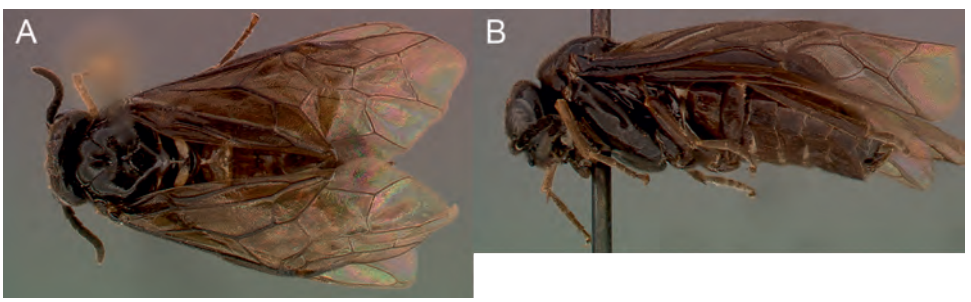

Fig. 158. A-B. *Dulophanes obscurus*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

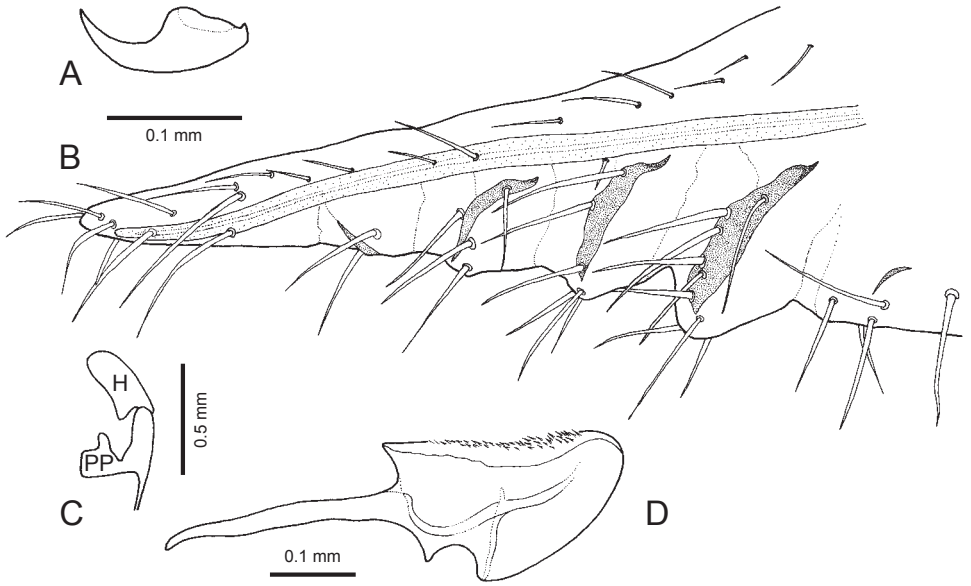

Fig. 159. A-D. *Dulophanes obscurus*. **A**. Tarsal claw. **B**. Lancet. **C**. Parapenis and harpe (right, ventral aspect). **D**. Penis valve (left, lateral aspect).

Fig. 160. The habitat of *Dulophanes obscurus* on the Farm "Vaalgrass" southwest of Windhoek (Nama Karoo Biome). (Photo by F. Koch)

Distribution

Lesotho, Namibia (Khomas Region), South Africa (Western Cape Province) (Fig. 184).

Ecology and habitat

Dulophanes obscurus has been found in different biomes: Woodland Savanna, Thornbush Savanna (Fig. 160), Grassland and Fynbos Biome. The flight season is dependent on the biome, from September to March.

Remarks

Only *Dulophanes obscurus* is recorded from the study area, and its occurrence in several different biomes suggests that it may be a group comprising a number of different species. Further taxonomic investigations are necessary.

Dulophanes obscurus was only recently recorded as the second representative species of Tenthredinidae in the winter rainfall zone of western South Africa, following on the record of *Durbadnus taegeri* (see discussion under that species).

9.5 Family Orussidae

http://www.waspweb.org/Orussoidea/Orussidae/index.htm

With their long ovipositor the females so that attacking the larvae of wood-boring Buprestidae and Cerambycidae (Coleoptera), as well as Xiphydriidae and Siricidae

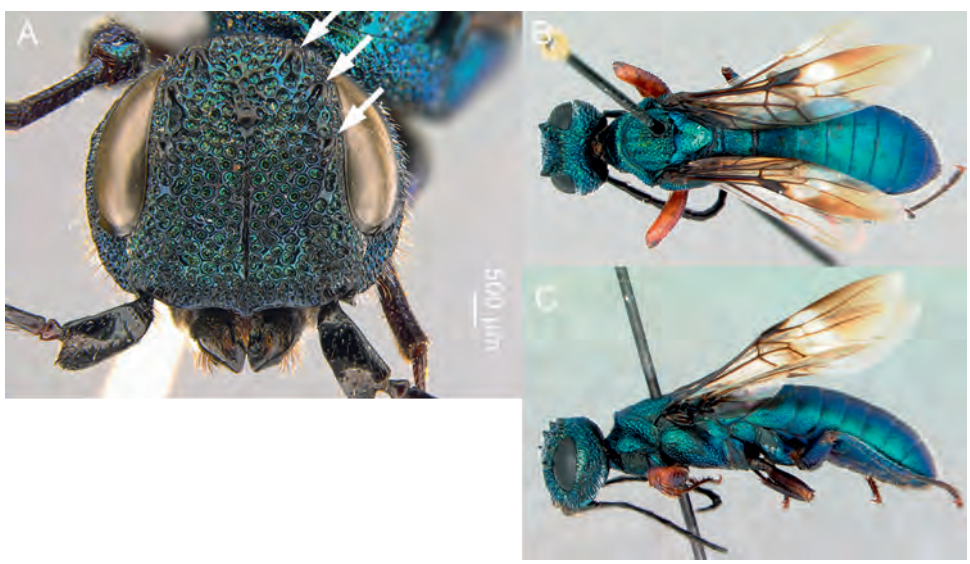

Fig. 161. A-C. *Chalinus braunsi*. **A**. Head (frontal aspect), coronal teeth arrowed, habitus, male. **B**. Dorsal aspect. **C**. Lateral aspect. (Photos S. van Noort)

(Hymenoptera). The larvae of the orussids living as ectoparasitoids (Vilhelmsen *et al*. 2013).

No species of this family are known from the study area. Up to now only three orussid species were reported in South Africa: The metallic bluish-green coloured *Chalinus braunsi* (Enslin, 1911) (Figs 161A-C) known from the Limpopo Province, Botswana, Mozambique and Zimbabwe, the black *Pedicrista hyalina* Benson, 1935 (Figs 162A-D) known from the North West Province, Malawi and Zimbabwe, as well as the very small (2.6 mm), blackish coloured *Leptorussus kwazuluensis* Vilhelmsen, 2003 from the KwaZulu-Natal Province.

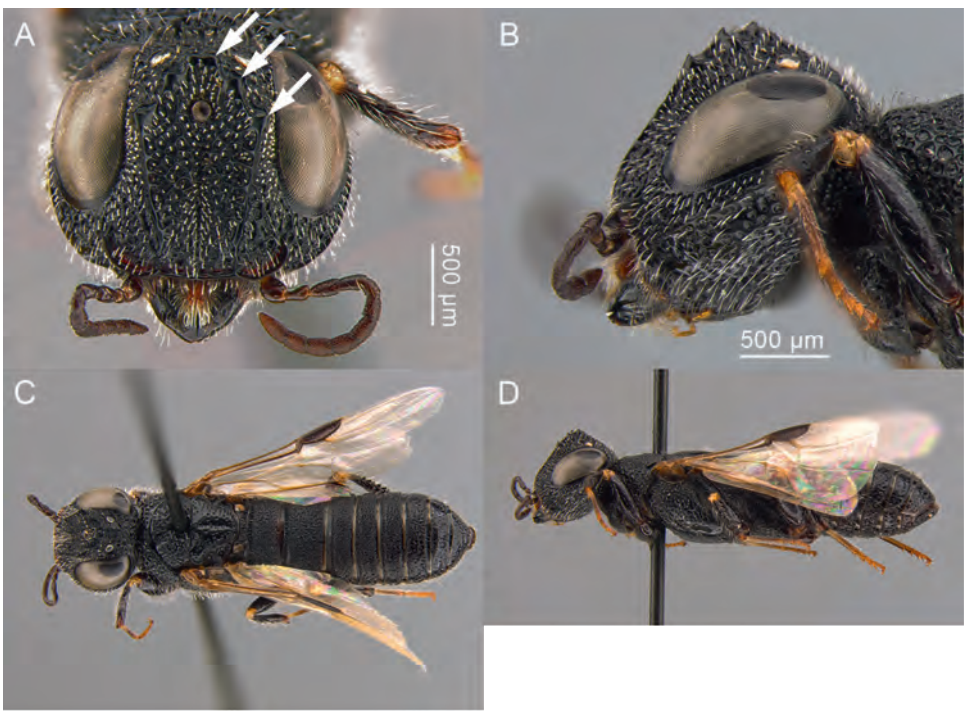

Fig. 162. A-D. *Pedicrista hyalina*. **A**. Head (frontal aspect), coronal teeth arrowed. **B**. Lateral aspect, habitus, male. **C**. Dorsal aspect. **D**. Lateral aspect. (Photos by S.M. Blank)

9.6 Introduced (aliens) and invasive species

Family Tenthredinidae

Subfamily Heterarthrinae

Genus *Caliroa* Costa, 1859

Caliroa Costa, 1859: 59. Type species: *Caliroa sebetia* Costa, 1859 [*Caliroa cothurnata* (Serville, 1823)], by monotypy. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Heterarthrinae/Caliroa/index.htm

Synonyms are listed by Taeger *et al.* (2010).

Caliroa cerasi (Linnaeus, 1758). Pear-slug

Tenthredo cerasi Linnaeus, 1758: 557 [by indication on the work of Réaumur; the description is mainly of the larva and the type locality is Paris, France].

Pear-slug is the approved common name.

Synonyms listed by Taeger *et al.* (2010).

Female (Figs 163A, B)

Black with fore and mid tibia brownish. Mandible in apical half yellow to reddish towards apex. Wings very slightly infuscate throughout; stigma, costa, subcosta and rest of venation blackish.

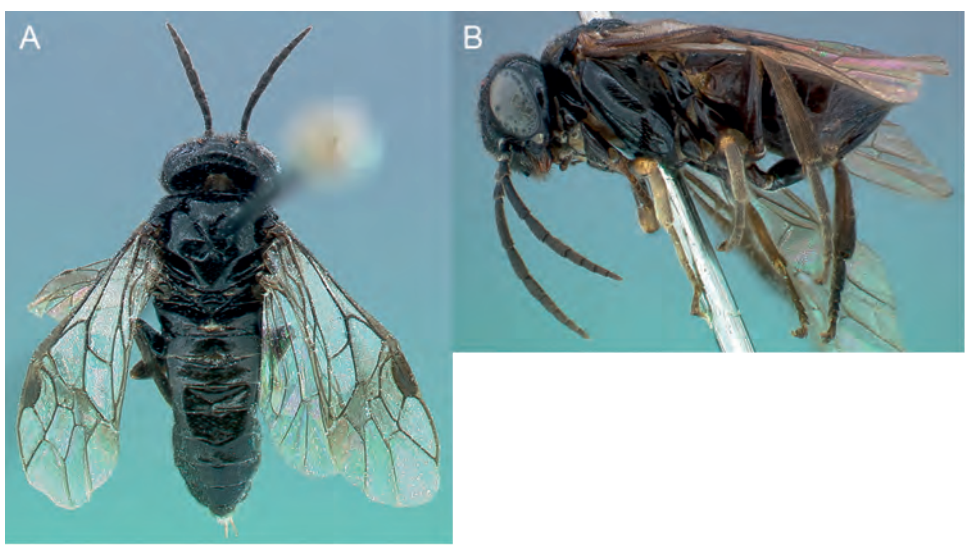

Fig. 163. A-B. *Caliroa cerasi*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Head parallel-sided behind eyes. Antenna 1.9× as long as maximum head width. Anterior margin of clypeus shallowly, triangularly emarginate. Postocellar area: width : length = 1.6 : 1.0; without longitudinal furrow, lateral furrows convex. Tarsal claws with a large basal lobe (Fig. 164A).

Head and thorax very scattered micropunctate; pubescence blackish. Abdomen smooth and shiny. Sawsheath in dorsal view parallel-sided; in lateral view pointed apically (Fig. 164B). Lancet with about 18 serrulae (Fig. 164C).

Length: 4.8–5.7 mm.

Male

Unknown in southern Africa.

Etymology

The species name alludes to *cerasus* (cherry), one of the host plants of the species.

Distribution

Widespread in the Palaearctic Region, and has been introduced into North America, Argentina, Chile, Uruguay, Australia (including Tasmania), New Zealand (Smith 1971) and South Africa. In South Africa *C. cerasi* is reported from the following provinces: Eastern Cape, Free State, Gauteng, KwaZulu-Natal, North West, Western Cape (Fig. 184) (Koch & Smith 2012). Additionally, a map of distribution is published by Picker & Griffiths (2011).

Host plants

In South Africa *C. cerasi* is known as a pest on deciduous fruit trees such as peach, quince, apricot and plum (Prinsloo 1985).

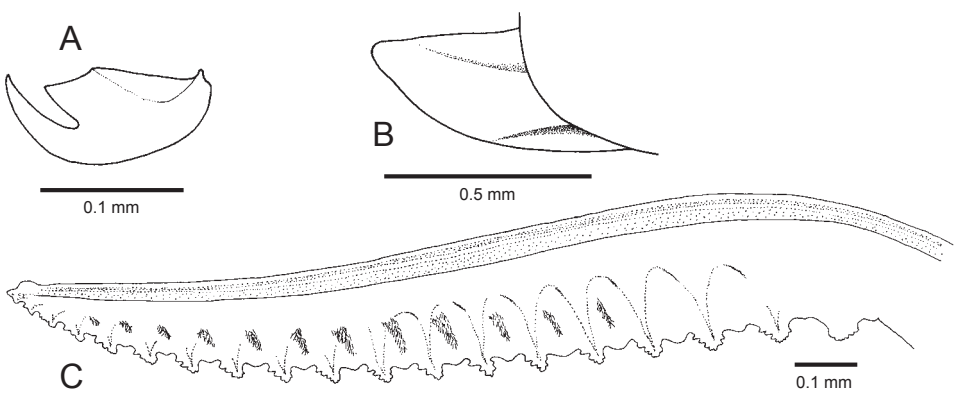

Fig. 164. A-C. *Caliroa cerasi*. **A**. Tarsal claw. **B**. Sawsheath (lateral aspect). **C**. Lancet.

Ecology and habitat

The males of this species are very rare in the Palaearctic Region, except in parts of the Mediterranean Region, and unknown in southern Africa. Therefore *Caliroa cerasi* seems to be parthenogenetic in southern Africa.

In the study region records are known from November and January. The flight season throughout South Africa is from September to April and July.

Remarks

The introduced *Caliroa cerasi* is separated from the indigenous *C. blanki* Koch & Smith, 2011, known from the western provinces Limpopo and Mpumalanga by its entirely black legs and presence of complete vein 2A+3A in the fore wing (Fig. 41C). Futhermore, in the hind wing of *C. cerasi* the cells Rs and M usually present, sometimes both absent, or either Rs or M present, whereas in *C. blanki* cell RS is present and M is absent.

Genus *Fenusa* Leach, 1817

Fenusa Leach, 1817: 126. Type species: *Tenthredo* (*Emphytus*) *pumila* Klug, 1818 [= *Fenusa* (*Fenusa*) *pumila* Leach, 1817, by monotypy]. http://www.waspweb.org/Tenthredinoidea/Tenthredinidae/Heterarthrinae/Fenusa/index.htm

Synonyms are listed by Taeger *et al.* (2010).

Fenusa dohrnii (Tischbein, 1846)

Kaliosysphinga dohrnii Tischbein, 1846: 80. ♀ [the sex is not mentioned, but this species is entirely parthenogenetic]. Type locality: Herrstein, Fürstenthum Birkenfeld (Germany).

Synonymys are listed by Taeger *et al.* (2010).

Female (Figs 165A, B)

Black with fore and mid tibia dirty whitish to light brown, hind tibia brown. Mandible in apical half yellow to reddish towards apex. Wings moderately infuscate throughout; stigma, costa and subcosta light brown, rest of venation brown in basal half becoming light brown towards apex.

Head narrowed behind eyes. Antenna 1.1× as long as maximum head width. Anterior margin of clypeus truncated. Postocellar area: width : length = 2.1 : 1.0; without longitudinal furrow, lateral furrows more or less parallel-sided. Tarsal claws simple (Fig. 166A)

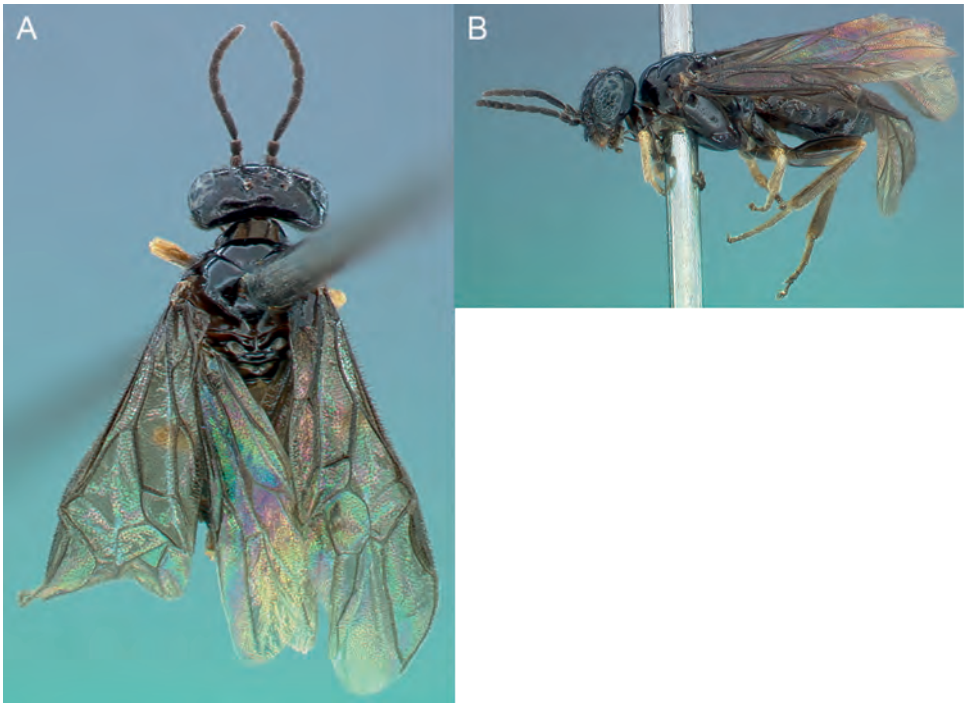

Fig. 165. A-B. *Fenusa dohrnii*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Head, thorax and abdomen smooth and shiny; pubescence light brown. Sawsheath in dorsal view gradually narrowed towards apex; in lateral view rounded apically (Fig. 166B). Lancet with about 9 serrulae (Fig. 166C).

Length: 3.2–3.5 mm.

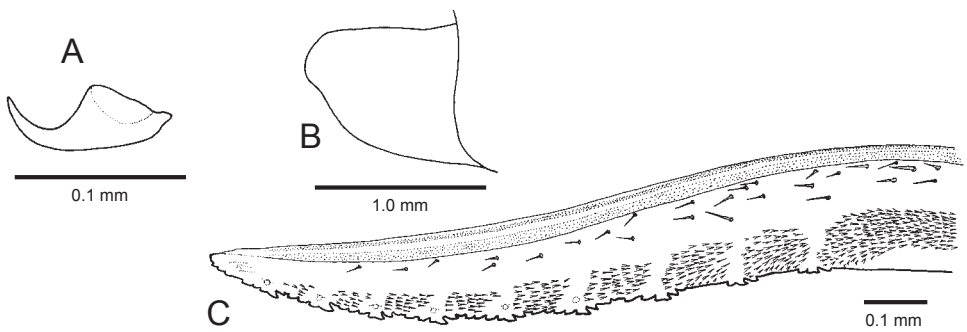

Fig. 166. A-C. *Fenusa dohrnii*. **A**. Tarsal claw. **B**. Sawsheath (lateral aspect). **C**. Lancet.

Male

Unknown; parthenogenetic.

Etymology

Named after Carl August Dohrn (1806-1892), a German entomologist.

Distribution

Widespread in the Palaearctic Region, and has been introduced into North America and South Africa; distribution in Western Cape Province (Fig. 184).

Host plant

According to Prinsloo (1985) the larvae of *F. dohrnii* make blotch mines in the leaves of species of *Alnus* spp. (alder) (Betulaceae).

Ecology and habitat

In the study region the flight season is in November and December.

Subfamily Nematinae

Genus *Nematus* Panzer, 1801

Nematus Panzer, 1801: 82: 10. Type species: *Tenthredo* (*Nematus*) *lucida* Panzer, 1801 [= *Nematus* (*Nematus*) *lucidus* (Panzer, 1801)], by monotypy.

Synonyms are listed by Taeger *et al.* (2010).

Nematus oligospilus Förster, 1854

Nematus oligospilus Förster, 1854: 284. ♀. Type locality: Aachen, Deutschland [Germany].

Synonym only included if relevant to Afrotropical fauna. The full synonymy is listed by Taeger *et al.* (2010).

Nematus desantisi Smith, 1983: 260. ♀. Type locality: Chubut, Argentinia.

Female (Figs 167A, B)

Green when alive; dry specimens faded yellow. Ocelli sometimes very narrowly black margined; apex of mandible reddish brown; antenna pale yellow, dorsal surface of scape, pedicel and flagellomere 1 black, following flagellomeres more or less brownish on dorsal surface. Hind tarsus brownish. Wings hyaline; costa and stigma yellow (green when alive), subsosta and rest of venation brown. Sawsheath apically with narrow blackish margin.

Head parallel-sided behind eyes. Antenna 3.1× as long as maximum head width. Eyes slightly diverging below. Anterior margin of clypeus circularly emarginate medially. Malar space 1.4× diameter of lateral ocellus. Frontal area moderately limited; anterior cross-ridge conspicuously interrupted medially. Interantennal fovea rounded, slightly more than diameter of lateral ocellus. Postocellar area: width: length = 2.3 : 1.0; with very shallow longitudinal furrow, lateral furrows convex.

Head and thorax shiny, with duller microsculpture at middle of vertex and frons; pubescence white. Sawsheath in dorsal view gradually narrowed towards apex; in lateral view pointed apically. Lancet with about 20 serrulae (Koch & Smith 2000: 293, figs 1, 2).

Length: 5.2-7.0 mm.

Male

Unknown in southern Africa.

The description is based on European males:

Colouration similar to that of female, except for black postocellar area, occiput behind and frontal area. Mesonotum, except for notauli, metascutellum and metapostnotum black, propleuron and anepimeron brownish. Dorsal surface of abdomen with a broad, black longitudinal stripe.

Other features similar to that of female. Penis valve: (Koch & Smith 2000: 293, fig. 5).

Length: 4.7-5.3 mm.

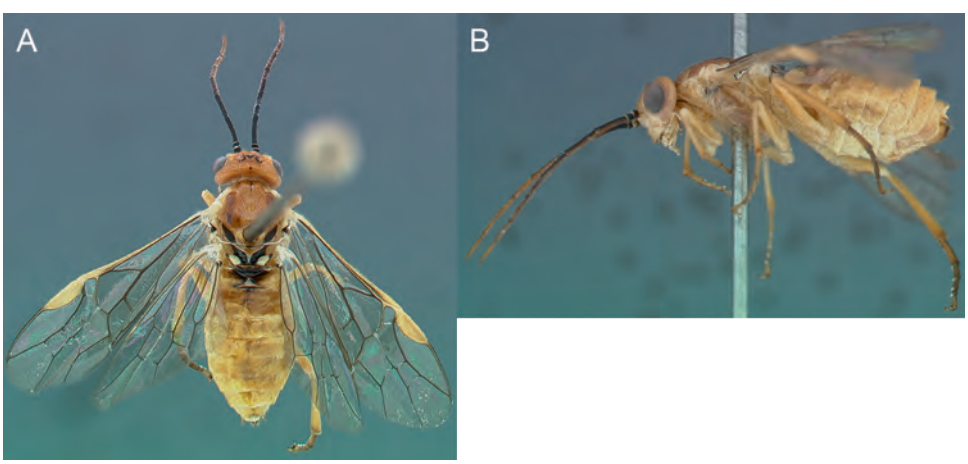

Fig. 167. A-B. *Nematus oligospilus*, habitus, female. **A**. Dorsal aspect. **B**. Lateral aspect. (Photos by A.D. Liston)

Etymology

Oligos (Greek) means “small”, and *pilus* (Latin) means “hair”. Possibly the name alludes to the rather small cerci of the female.

Distribution

Widespread in the Northern Hemisphere; introduced into Argentina, Chile, Lesotho, South Africa, Australia and New Zealand (Koch & Smith 2000).

Host plants

In South Africa: *Salix babylonica* Linnaeus, *S. fragilis* Linnaeus (Salicaceae) (Urban & Eardley (1995, 1997).

Ecology and habitat

The males of this species are unknown in southern Africa, where *N. oligospilus* is probably parthenogenetic. The species has sometimes been reported to be abundant on cultivated willows (Urban & Eardley 1995, 1997). Currently this species is only known from the summer rainfall zone in South Africa (Koch & Smith 2000). However, this species is also expected to occur in the Cape region. The flight season is from January to March.

Remarks

The southern African specimens are conspicuously paler than the European material. In Europe the specimens are black marked on the head, especially on the frons and postocellar area; mesoscutum with three black longitudinal stripes, and terga 1-3 with black medial spots.

9.7 Family Siricidae

http://www.waspweb.org/Siricoidea/Siricidae/index.htm

Woodwasps or horntails is the approved common name.

Description

Antenna with about 18 flagellomeres. Fore tibia with one apical spine. Apical tergum of female (Fig. 168A, arrowed) and apical sternum of male (Fig. 168B, arrowed) with a horn-like projection (cornus). Pronotum laterally bulging and, collar-shaped.

Genus *Sirex* Linnaeus, 1760

Sirex Linnaeus, 1760: 396. Type species: *Sirex juvencus* (Linnaeus, 1758), designated by Curtis, 1829. http://www.waspweb.org/Siricoidea/Siricidae/Sirex/index.htm

Synonyms are listed by Taeger *et al.* (2010).

Sirex noctilio Fabricius, 1793. Sirex woodwasp, European woodwasp

Sirex noctilio Fabricius, 1793: 87-91 [sex not stated, but the description is of a male]. Type locality: Germania [Germany].

Sirex woodwasp and European woodwasp are the approved common names.

Synonyms are listed by Taeger *et al.* (2010).

Female (Fig. 168A)

Body black with blue metallic luster. Legs light brown; coxae and trochanters black, and apical two tarsal segments infuscate. Wings flavescent-hyaline; first radial cell (1R1) more or less infuscate, stigma, costa, subcosta and rest of venation light brown.

An important character separating females of *S. noctilio* in the presence of large, closely set pits on the ovipositor.

Length: 15.0-36.0 mm.

Male (Fig. 168B)

Body black with blue metallic luster; abdomen with terga 4-7 and sterna 4-7 yellow. Legs light brown; coxae, trochanters, hind tibia and hind tarsus black. Wings similarly coloured to those of female.

Length: 9.0-32.0 mm.

Etymology

The species name means “of the night”; from Latin *nocte*.

Distribution

Widespread in the Palaearctic Region; introduced to Australia, New Zealand, South Africa, South America, and North America (Schiff *et al*. 2006).

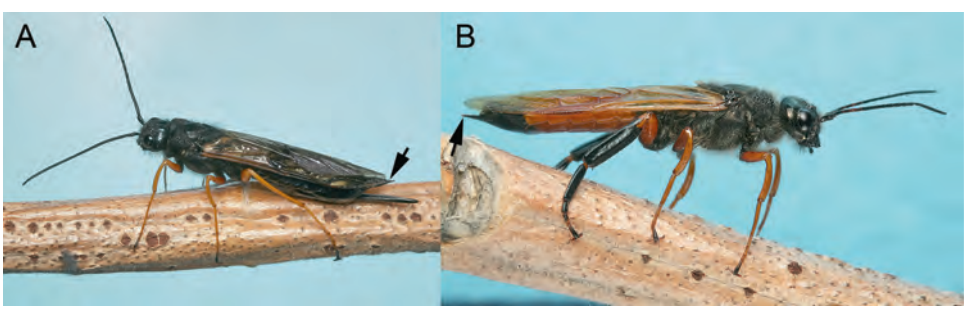

Fig. 168. A-B. *Sirex noctilio*: The tube-like projections (arrowed): **A**. On apical tergum of female. **B**. On apical sternum of male. (Photos by H. Goulet)

Within eight years of its discovery in the Cape Peninsula in 1994, the European woodwasp had spread up to 380 km along both the western and southern coasts of South Africa (Tribe & Cillie 2004). Its dispersal direction follows the *Pinus* plantations located in the mountains of Western Cape Province, especially in the Bokkeveld direction to the North as well as Riviersonderendberge, Langeberg, Outenikwaberge to Kougaberge in the East (Fig. 183). It has now reached Eastern Cape and KwaZulu-Natal (van Noort & Picker 2010) provinces.

The trade in products comprising untreated timber from small sawmills in Western Cape Province has facilitated the uncontrolled spread of this pest.

Host plants

Pine (*Pinus* spp.) and other coniferous trees (Prinsloo 1985); larvae live in tunnels in the wood of the trunk. In Western Cape Province larvae have been found in *P. patula* Schlechtendal & Chamisso (patula pine) introduced from east-central Mexico and on *P. radiata* David Don (radiata pine) native to California. Although *Sirex noctilio* was regarded as having not become established in southern Africa in the mid 1980's (Prinsloo 1985), this species is currently the most important pest of *Pinus* spp. in South Africa and is regarded as a serious threat to the forestry industry (Tribe & Cillie 2004).

Ecology and habitat

The invasive species *S. noctilio* needs the introduced species of *Pinus* spp. as host plants.

In the study region the flight season begins in the middle of November and ends in the middle of April, with a maximum in March and a second, smaller peak in January (Tribe & Cillie 2004). Most of the reported localities belong to the Fynbos Biome.

Remarks

Sirex noctilio displays a high degree of sexual dimorphism.

In South Africa some methods of biological pest control are employed, especially with nematodes and other parasitoid Hymenoptera (Tribe & Cillie 2004).

10. Checklist of species recorded in south-western Africa

Family Argidae

Arge angulifera Pasteels, 1953
Arge annulipes (Klug, 1834)
Arge bensoni Pasteels, 1953
Arge bisignata Konow, 1907
Arge capensis (Klug, 1814)

Arge cochraneae Koch & Goergen, 2010
Arge deckerti Koch, 2005
Arge dirce (W. F. Kirby, 1882)
Arge elandsbayensis Koch & Goergen, 2010
Arge furvipes Konow, 1907
Arge hereroensis Koch & Goergen, 2010
Arge iota Pasteels, 1953
Arge krabbefonteinensis Koch & Goergen, 2010
Arge kungveldensis Koch & Eardley, 2011
Arge langebergensis Koch & Goergen, 2010
Arge meyi Koch, 2006
Arge montana Koch & Goergen, 2010
Arge namaensis Koch & Goergen, 2010
Arge rufocyanea (Enslin, 1911)
Arge sjoestedti Konow, 1907
Arge speciosa (Klug, 1834)
Arge spei (Enslin, 1911)
Arge stuhlmanni (Kohl, 1893)
Arge taeniata (Klug, 1834)
Arge vannoorti Koch & Liston, 2012
Arge whiteheadi Koch & Goergen, 2010

Pampsilota brandbergensis Koch, 2006
Pampsilota luederitzensis Koch, 2006

Triarge citrusdalensis Koch, 2006
Triarge driehoekensis Koch, 2010
Triarge flavoapicalis Koch, 2006
Triarge karooensis Koch, 2006
Triarge mosselbayensis Koch, 2006
Triarge namaquaensis Koch, 2006
Triarge nigra Koch, 2006
Triarge plumbea Forsius, 1931
Triarge winterhoekensis Koch, 2006

Family Tenthredinidae

Subfamily Allantinae

Xenapates beateae Koch, 1996
Xenapates damaraensis Koch, 1995
Xenapates eardleyi Koch, 1995
Xenapates similis Benson, 1939

Subfamily Athaliinae

Athalia brevicornis Benson, 1962
Athalia incomta Konow, 1908

Athalia maraisi Koch, 2010
Athalia marginipennis Enderlin, 1920
Athalia turneri Forsius, 1931
Athalia ustipennis Mocsáry, 1909

Subfamily Blennocampinae

Distega bevisi Forsius, 1930
Distega montium Konow, 1907
Durbadnus taegeri Koch & Liston, 2012
Trisodontophyes diversa Koch, 2001

Subfamily Selandriinae

Dulophanes obscurus Forsius, 1931

Introduced and invasive species

Family Tenthredinidae

Subfamily Heterarthrinae

Caliroa cerasi (Linnaeus, 1758)
Fenusa dohrnii (Tischbein, 1846)

Subfamily Nematinae

Nematus oligospilus Förster, 1854

Family Siricidae

Sirex noctilio Fabricius, 1793

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Fig. 169. The entomologists and staff from MFN, who collect sawflies on a regular basis (from left): J. Deckert, F. Koch, W. Mey and K. Ebert. (Photo by J. Deckert)

12. Distribution maps

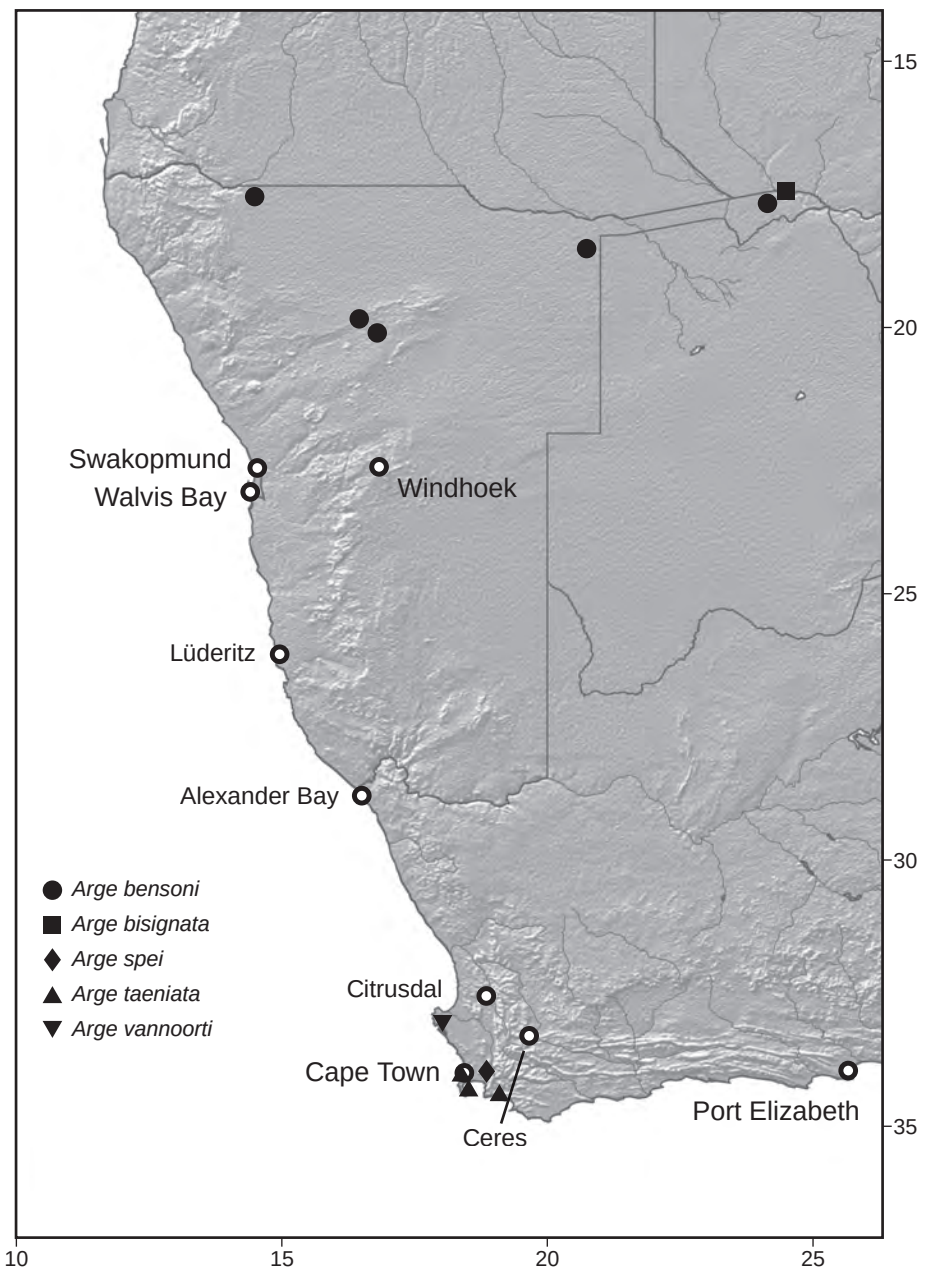

Fig. 170. Distribution map of *Arge bensoni* Pasteels, *A. bisignata* Konow, *A. spei* (Enslin), *A. taeniata* (Klug) and *A. vannoorti* Koch & Liston.

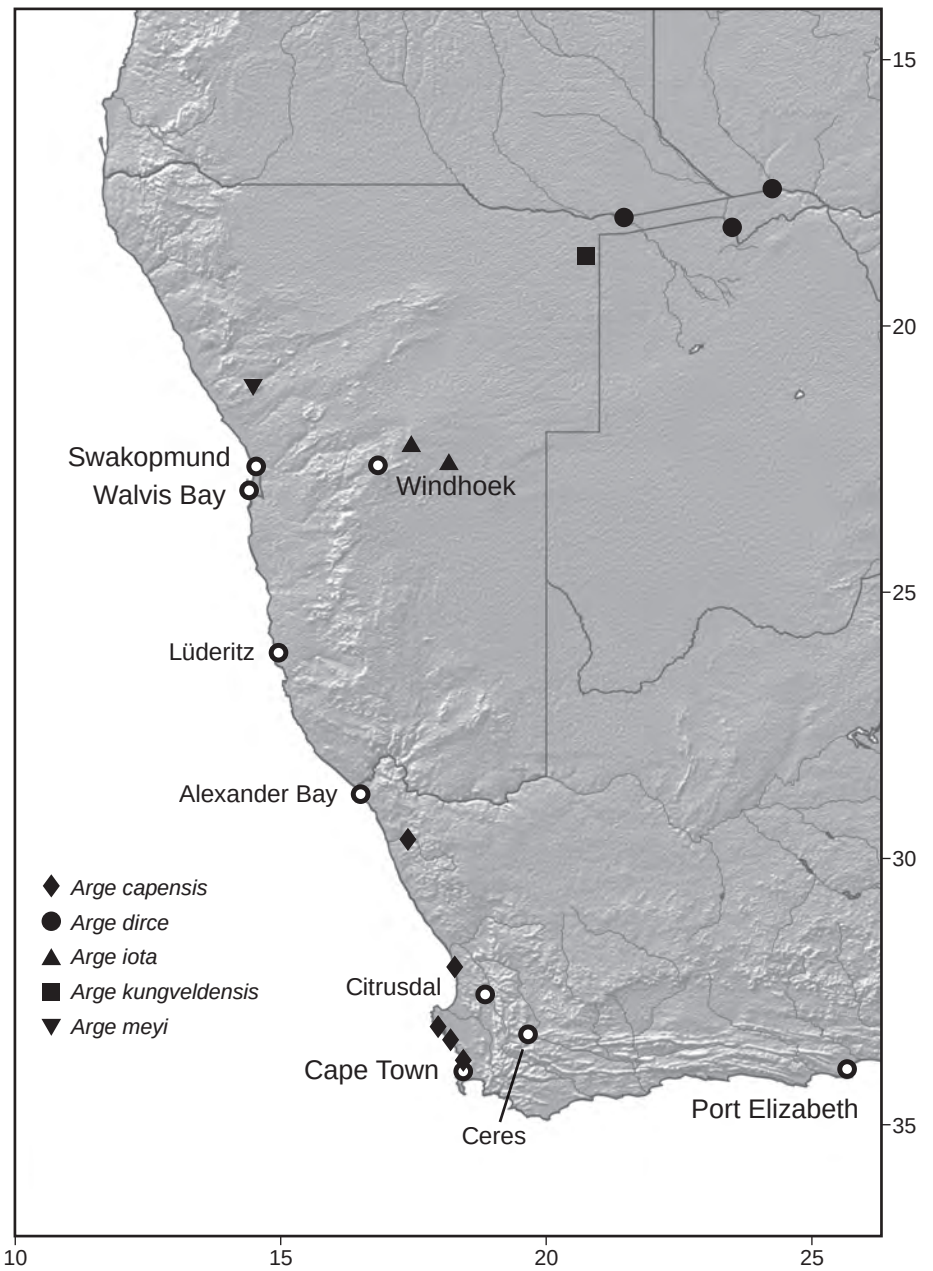

Fig. 171. Distribution map of *Arge capensis* (Klug), *A. dirce* (W.**F**. Kirby), *A. iota* Pasteels, *A. kungveldensis* Koch & Eardley and *A. meyi* Koch.

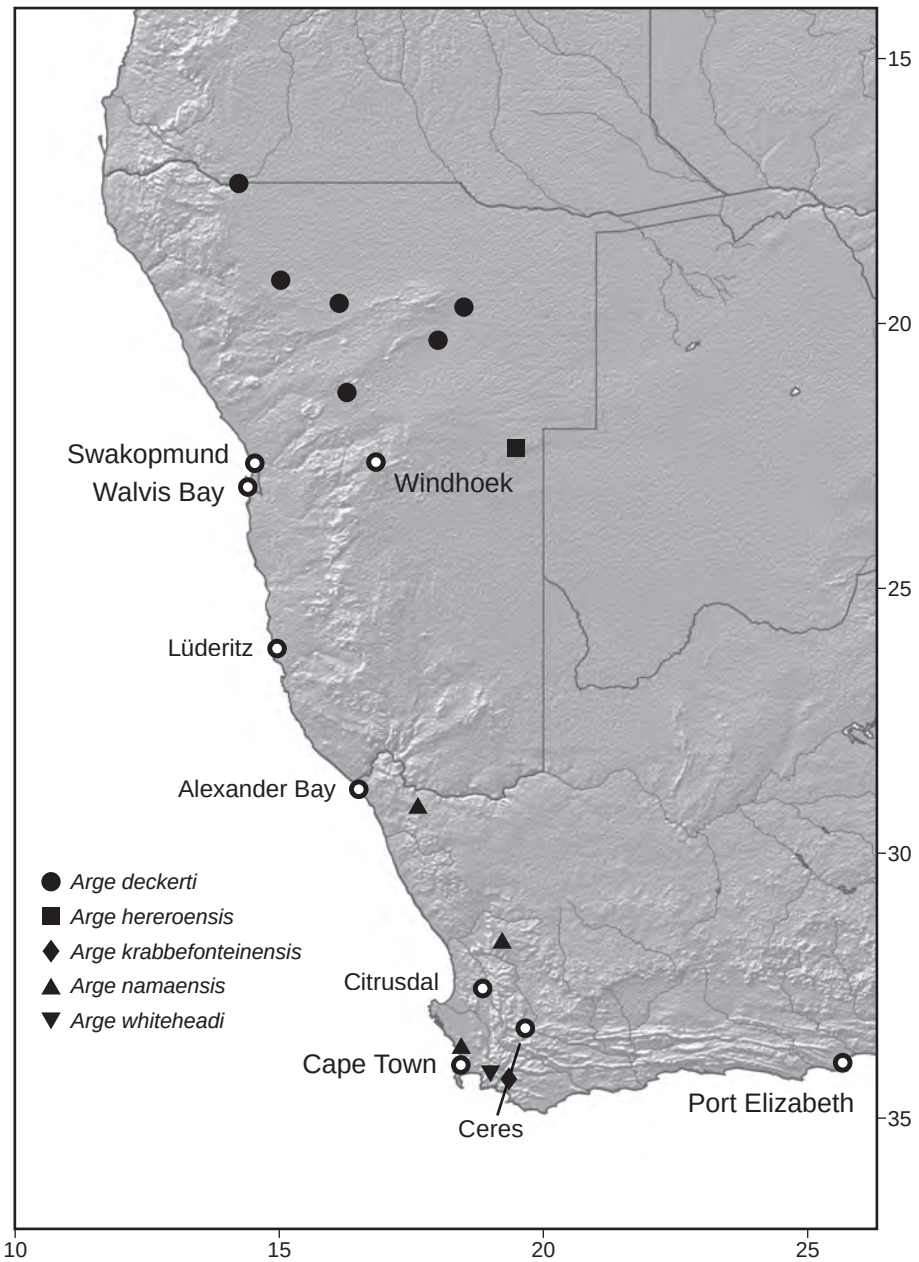

Fig. 172. Distribution map of *Arge deckerti* Koch, *A. hereroensis* Koch & Goergen, *A. krabbefonteinensis* Koch & Goergen, *A. namaensis* Koch & Goergen and *A. whiteheadi* Koch & Goergen.

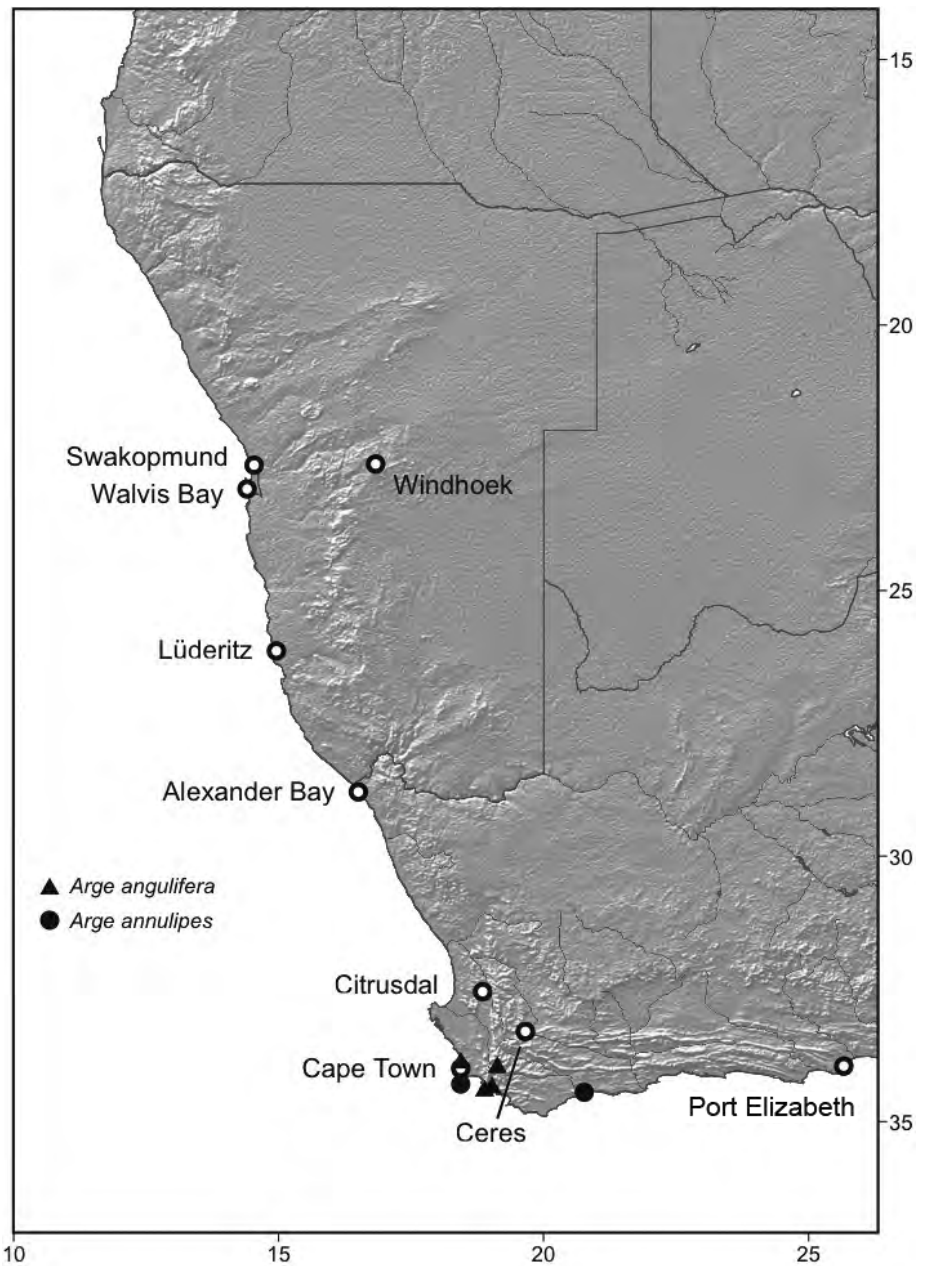

Fig. 173. Distribution map of *Arge angulifera* Pasteels and *A. annulipes* (Klug).

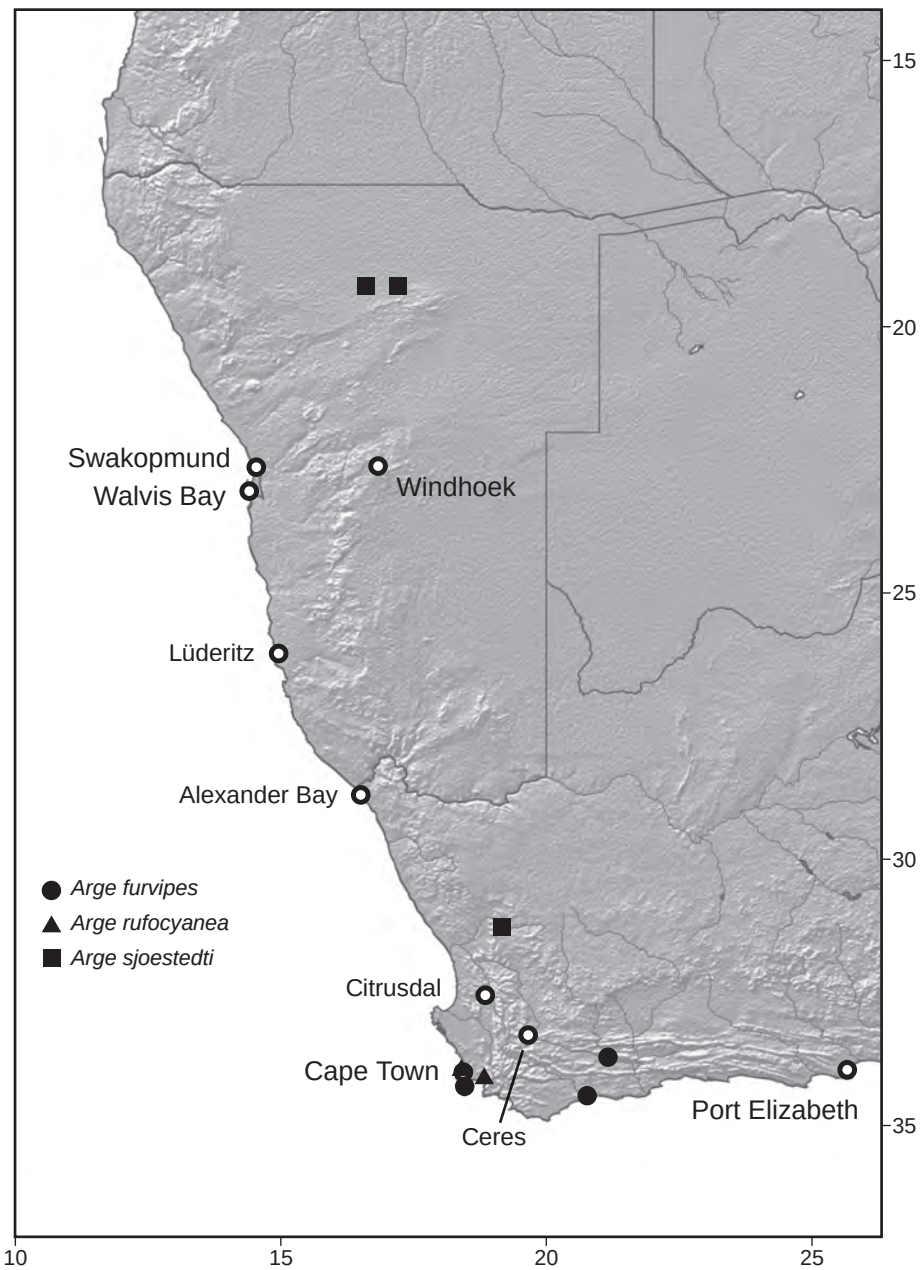

Fig. 174. Distribution map of *Arge furvipes* Konow, *A. rufocyanea* (Enslin) and *A. sjoestedti* Konow.

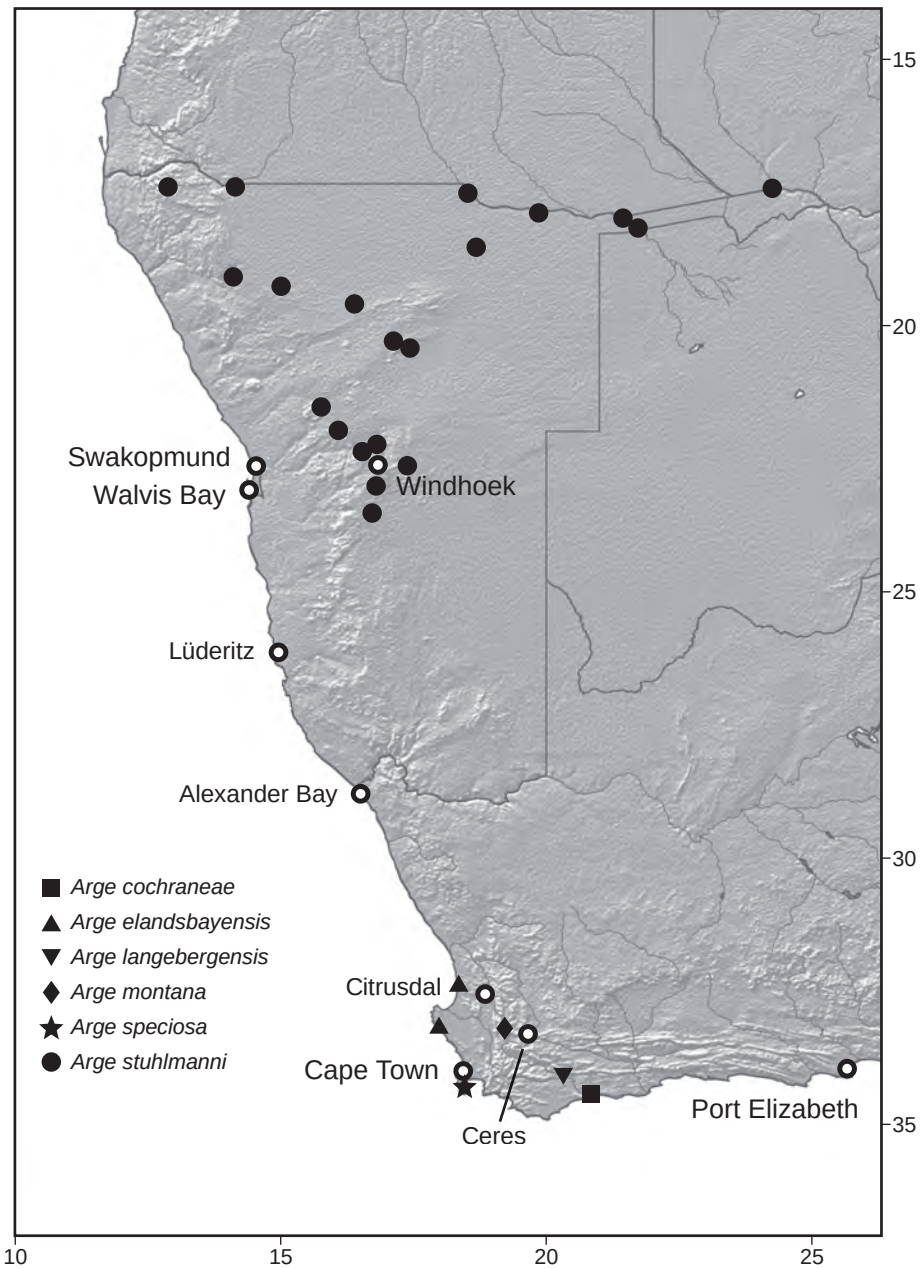

Fig. 175. Distribution map of *Arge cochraneae* Koch & Goergen, *A. elandsbayensis* Koch & Goergen, *A. langebergensis* Koch & Goergen, *A. montana* Koch & Goergen, *A. speciosa* (Klug) and *A. stuhlmanni* (Kohl).

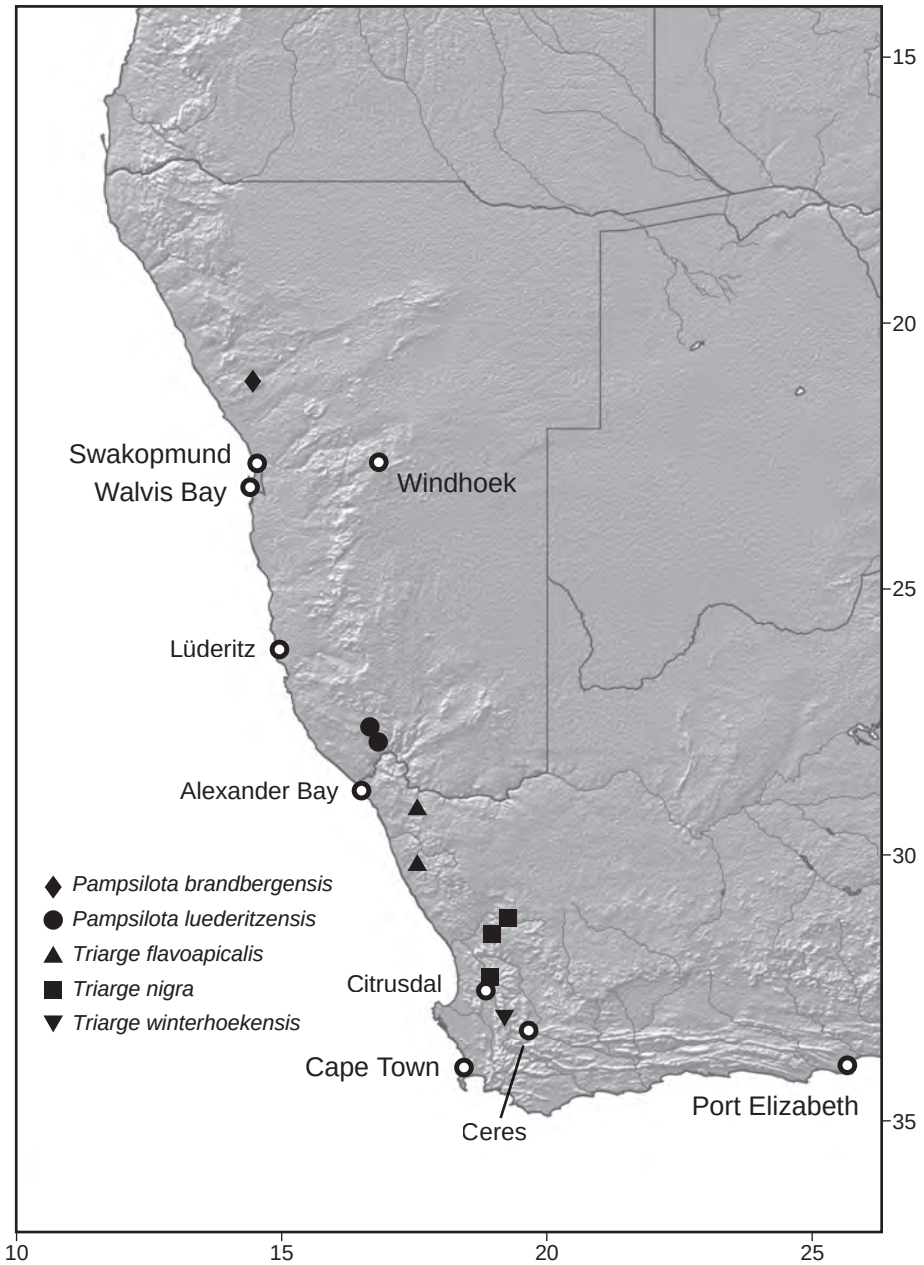

Fig. 176. Distribution map of *Pampsilota brandbergensis* Koch, *P. luederitzensis* Koch, *Triarge flavoapicalis* Koch, *T. nigra* Koch and *T. winterhoekensis* Koch.

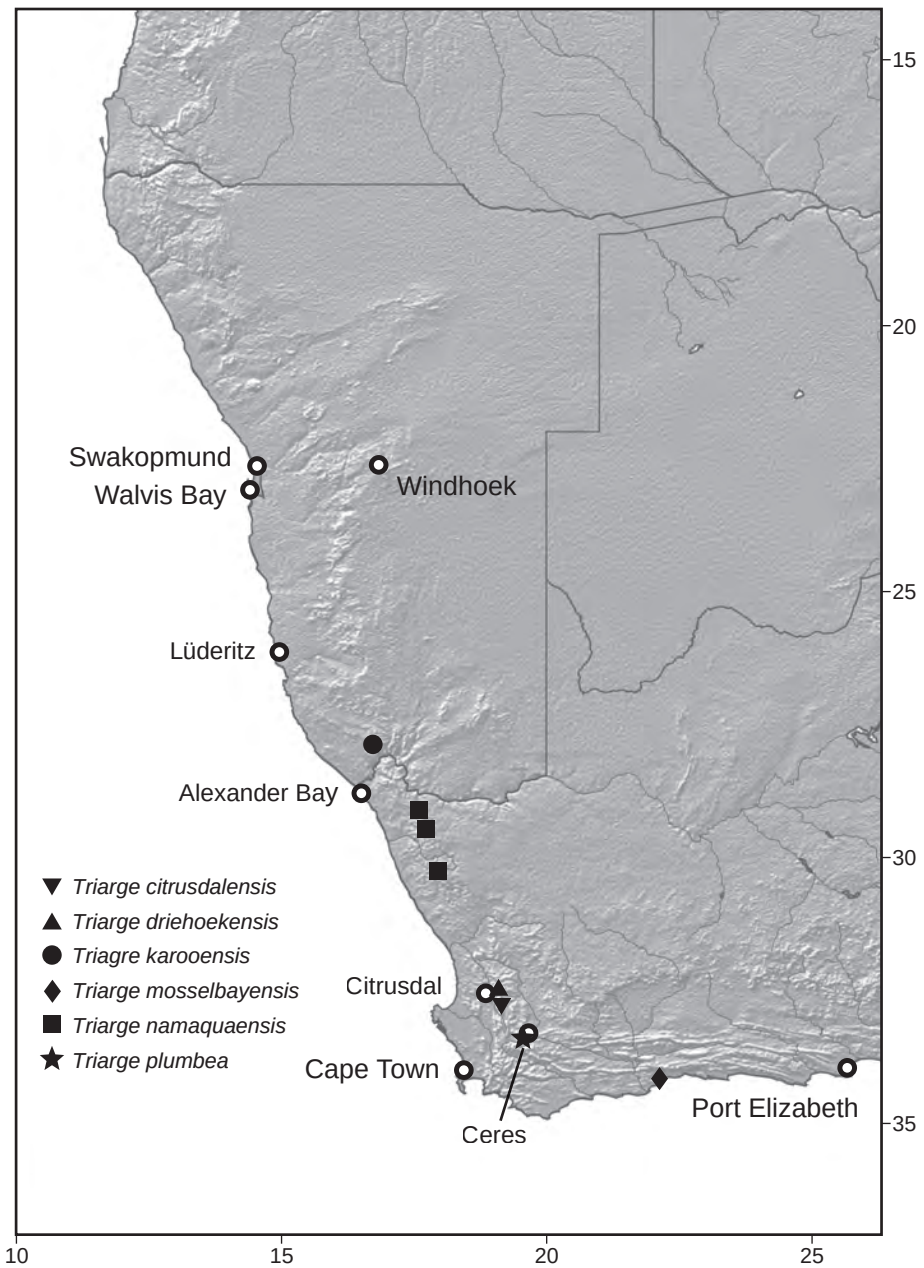

Fig.177. Distribution map of *Triarge citrusdalensis* Koch, *T. driehoekensis* Koch, *Triarge karooensis* Koch, *T. mosselbayensis* Koch, *T. namaquaensis* Koch and *T. plumbea* Forsius.

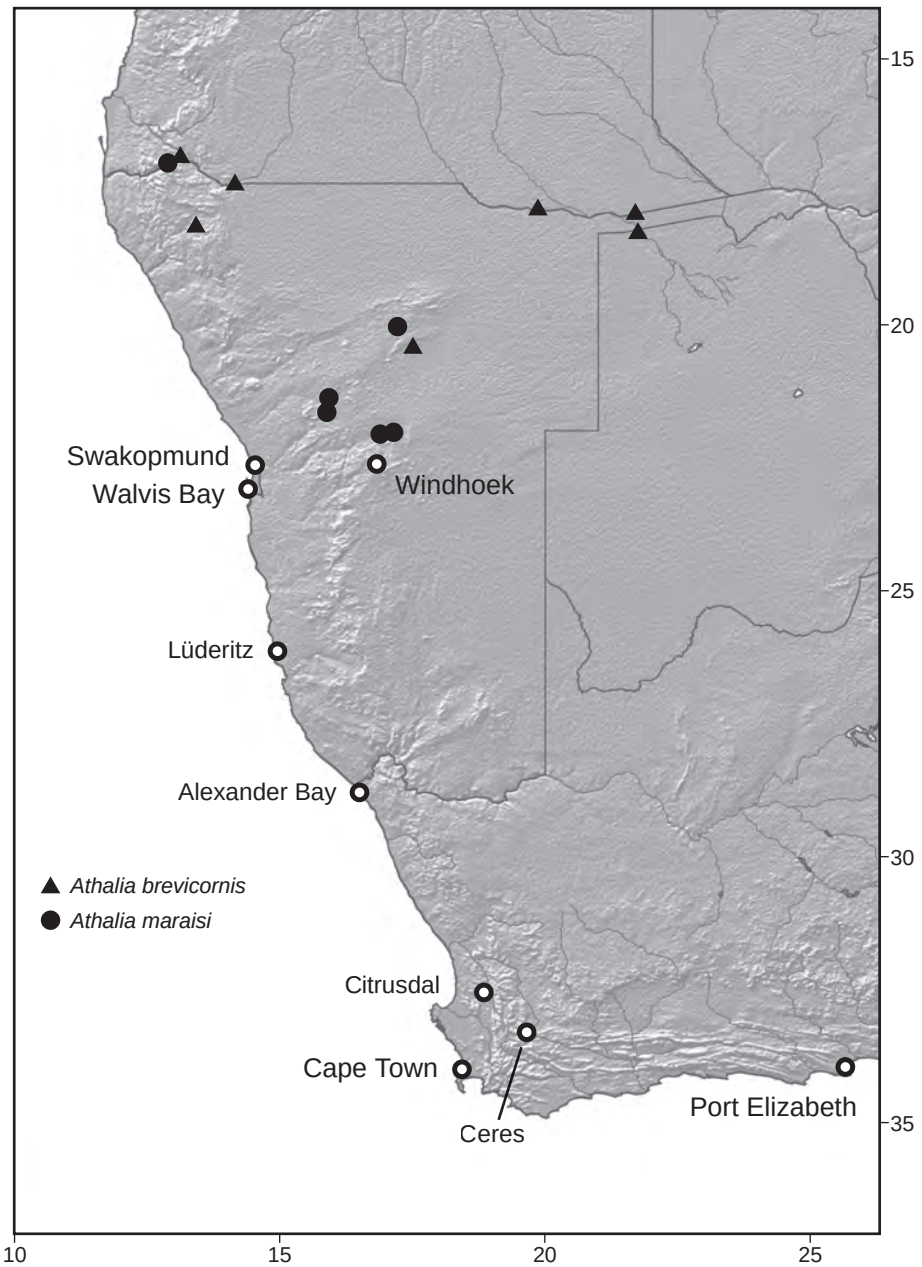

Fig. 178. Distribution map of *Athalia brevicornis* Benson and *A. maraisi* Koch.

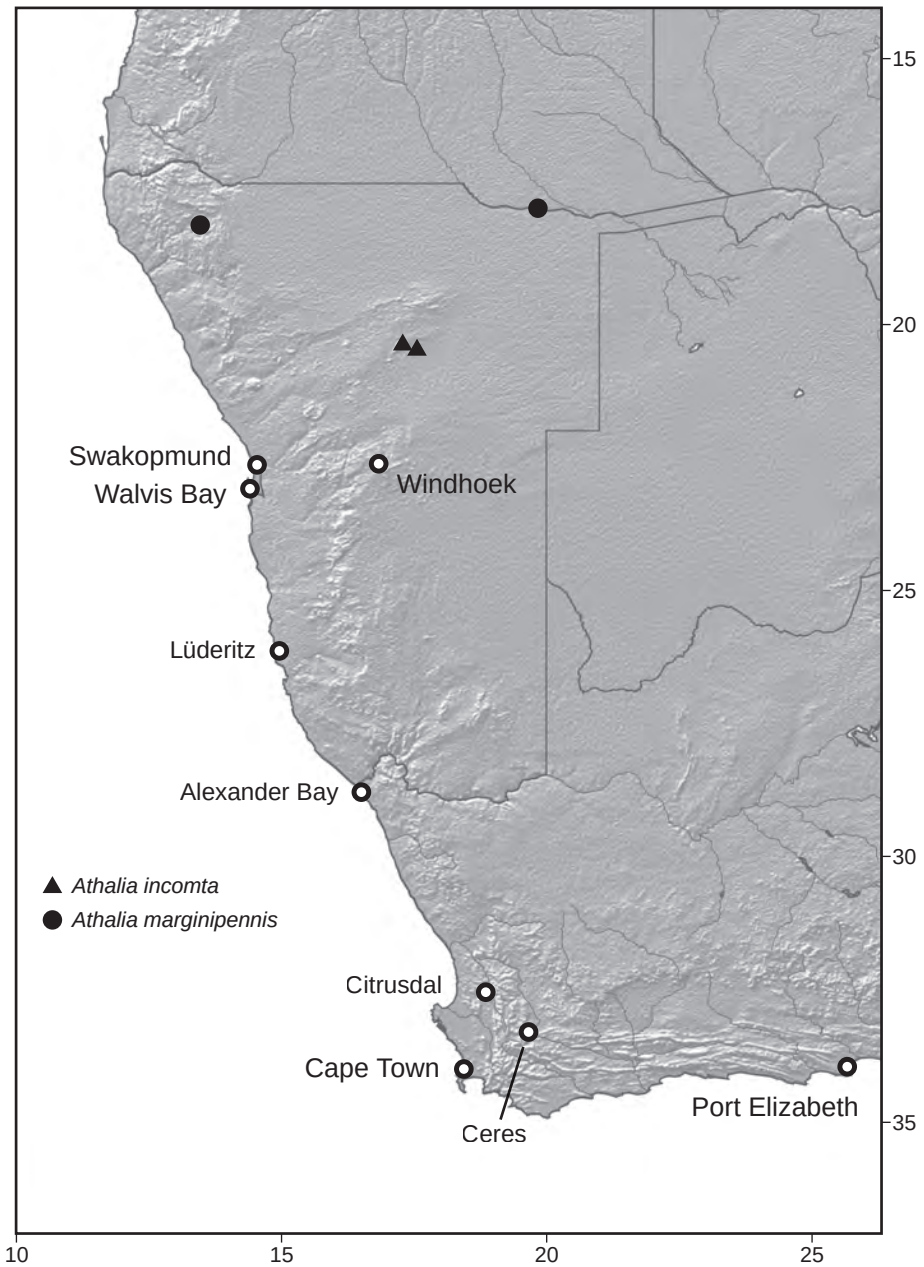

Fig. 179. Distribution map of *Athalia incomta* Konow and *A. marginipennis* Enderlin.

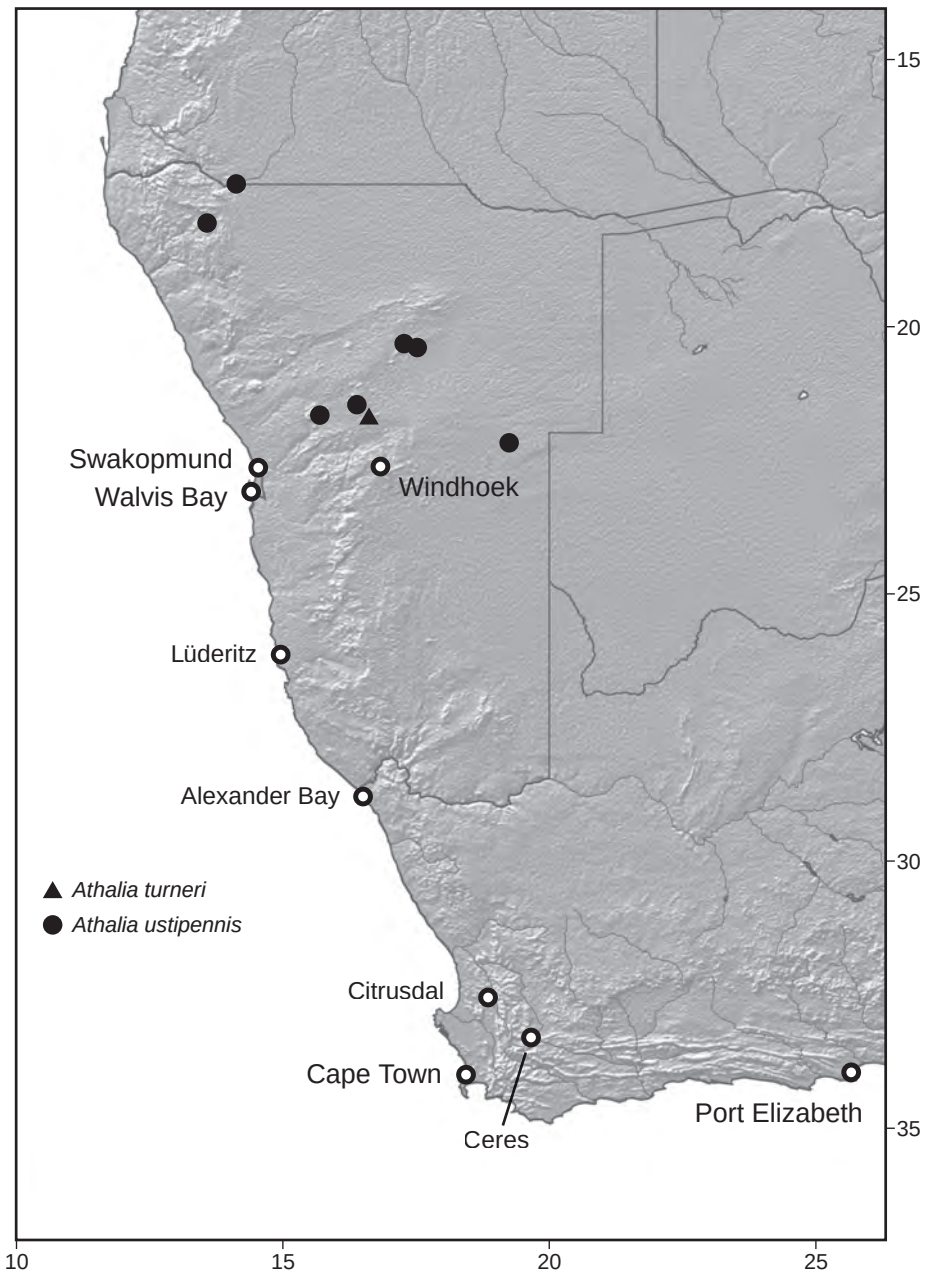

Fig. 180. Distribution map of *Athalia turneri* Forsius and *A. ustipennis* Mocsáry.

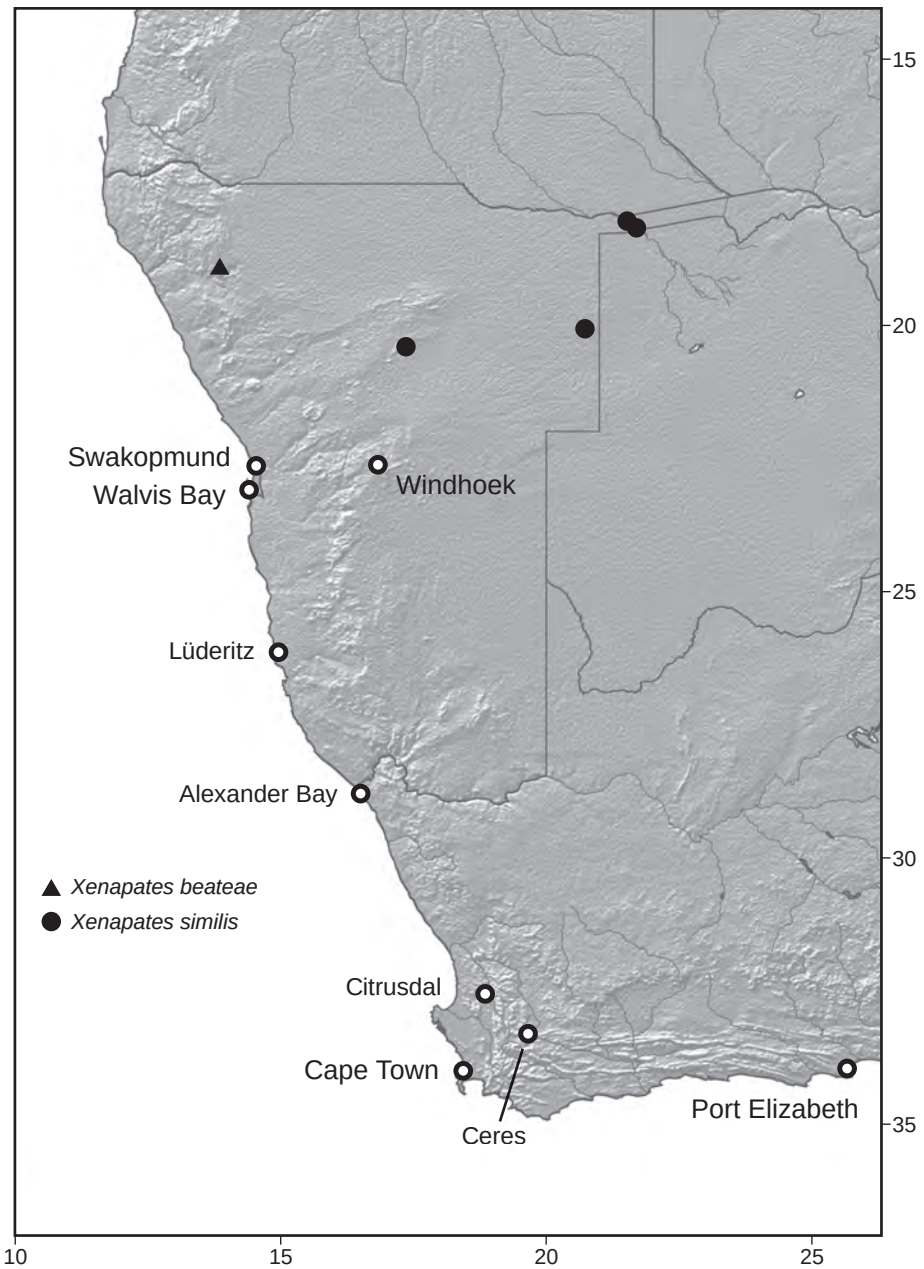

Fig. 181. Distribution map of *Xenapates beateae* Koch, 1996 and *X. similis* Benson, 1939.

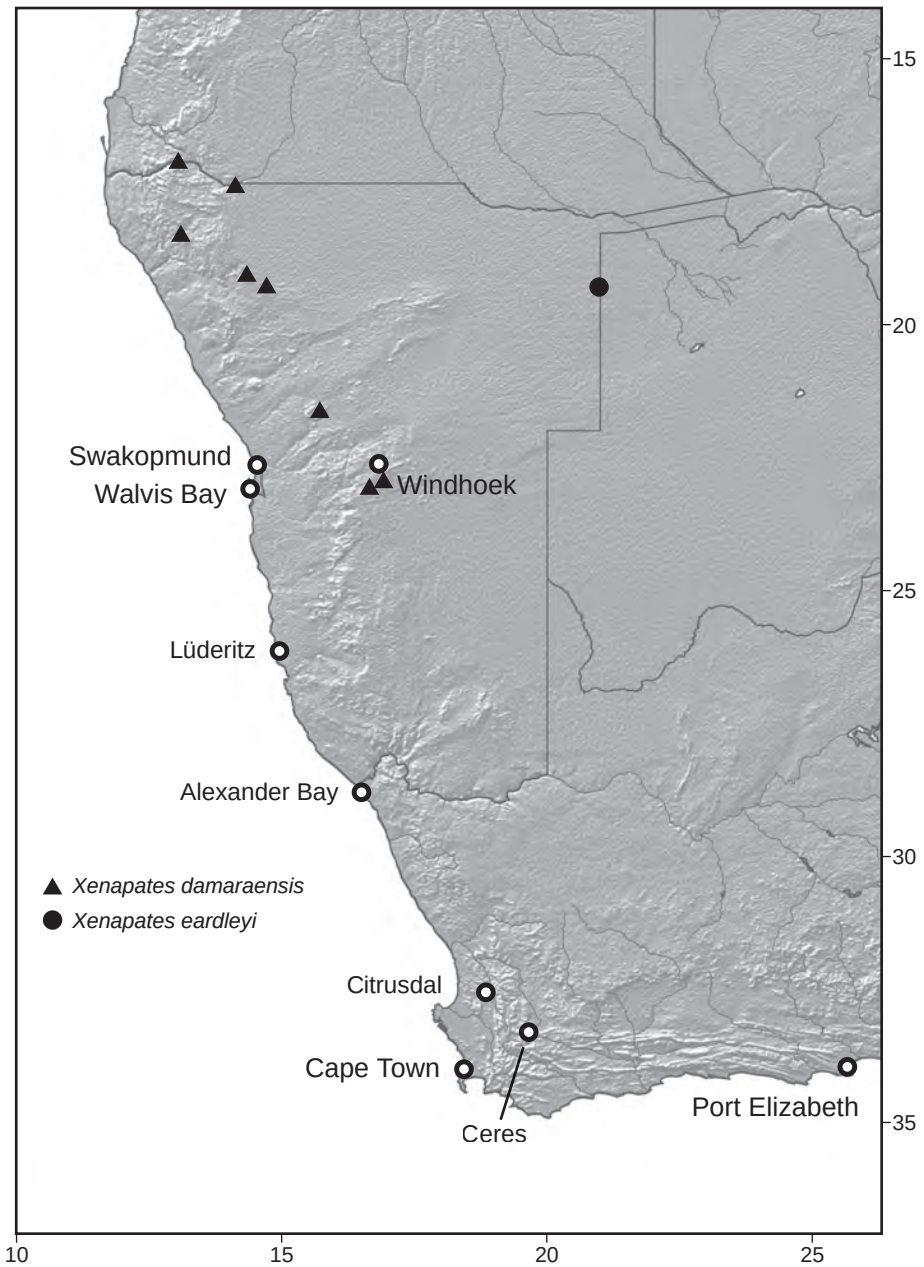

Fig. 182. Distribution map of *Xenapates damaraensis* Koch and *X. eardleyi* Koch.

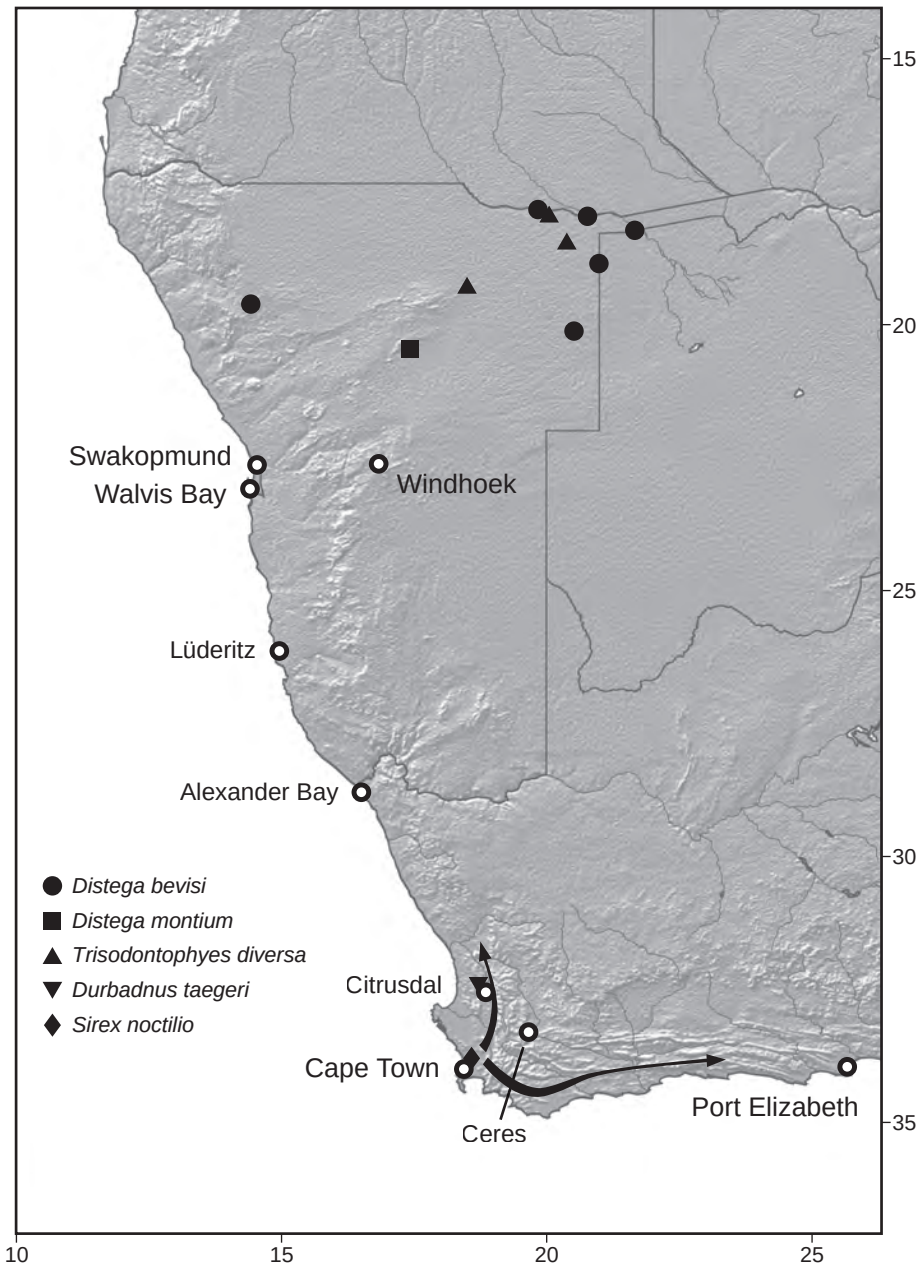

Fig. 183. Distribution map of *Distega bevisi* Forsius, *D. montium* Konow, *Durbadnus taegeri* Koch & Liston, *Trisodontophyes diversa* Koch and *Sirex noctilio* Fabricius.

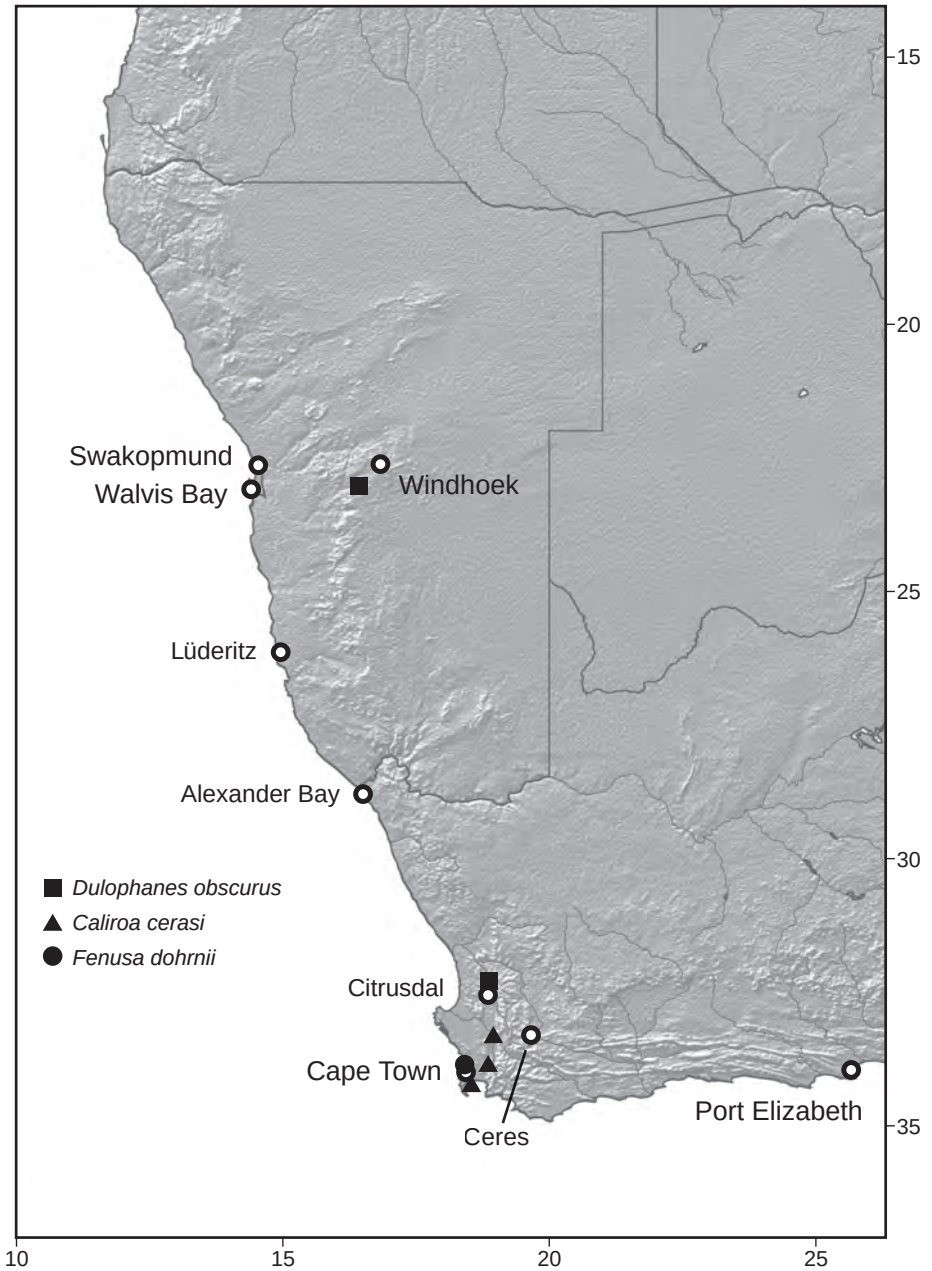

Fig. 184. Distribution map of *Dulophanes obscurus* Forsius, *Caliroa cerasi* (Linnaeus) and *Fenusa dohrnii* (Tischbein).

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14. Taxonomic index to the families, subfamilies, genera and species

A

B

C

D

E

F

H

K

L

M

N

O

P

S

T

X

Frank Koch (°1951) is curator of Hymenoptera at the Museum für Naturkunde Berlin, Germany. Since 1992, his main research interests are taxonomy, systematics, ecology, biodiversity and biogeography of Afrotropical sawflies. He has numerous co-operations with African entomologists in different projects and countries especially of southern Africa. In more than 30 expeditions to the Afrotropical Region he gained a lot of experience on the behaviour of sawflies, in their different habitats and established a sound basis for monitoring programs for these still incompletely investigated insects.

Georg Goergen (°1959) is a research entomologist at the International Institute of Tropical Agriculture, Cotonou, Benin where he developed an institutional taxonomic capacity building program to study arthropods of agricultural importance with focus on biological control against pests introduced into tropical Africa. In order to cover the rich native insect fauna, Georg has over the last 20 years been active in building one of the largest reference collections in West Africa.

Simon van Noort (°1964) is curator of Entomology at the Iziko South African Museum in Cape Town (South Africa) where he specializes on the systematics, evolution and biology of wasps. His broad interest in insect diversity has led to numerous collecting expeditions to remote areas of central, eastern and southern Africa. He has published over 95 scientific papers and is currently developing interactive identification keys to all genera of Afrotropical Hymenoptera.

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